

*Educ.*

# SCHOOL LIFE

OFFICIAL JOURNAL OF THE ★ ★ ★ ★ ★ ★ ★ ★

OFFICE OF EDUCATION

In This Issue

Adult Education  
and the School Administrator

THOMAS D. BAILEY

Science Fairs and Public Relations

RICHARD M. HARBECK



February 1960

UNIVERSITY  
OF MICHIGAN

APR 5 1960

EDUCATION  
LIBRARY

## Office Hours

WHEN WE SAW proofs of Dr. Bailey's speech, which is in this issue, we knew something was missing. We had heard him give that speech, and we remembered the fervor of his closing sentences, which told of his own experiences with adult education. But those sentences were gone!

How had we come to omit them? We searched the manuscript he had sent us, but they weren't there. Either he had cut them from our copy or he had departed from his text when he spoke them.

We were in a dreary mood until a page in the *Congressional Record* for February 25 caught our eye. There, through the courtesy of Congressman Sikes, was the entire speech, missing sentences and all! For once we don't mind being scooped, and are happy to add here the words so nearly lost to this issue.—T.C.

Have you ever had the experience of seeing a man 60 years old, upon the realization that he could read and write for the first time, stand before you with tears of satisfaction streaming down his cheeks? *I have.*

Have you ever attended a banquet of prison inmates who were members of an agricultural class specializing in ornamental horticulture, where the toastmaster was a young man who had been sentenced to death and had served 32 months in the death house before having his sentence commuted to life imprisonment. *I have.*

Have you ever visited a class of men between the ages of 21 and 55, most of them having families but exhibiting the courage to attend school late in the afternoons or at nights to complete third-grade work? *I have.*

I would like to paraphrase a statement made by Eddie Rickenbacker after his miraculous rescue from what had seemed certain death at sea: "If you have not had an experience with God in your life, my advice is to get busy and get yourself one." If you, as an educator, have not had experiences with all types of adults in education, my advice is to get busy and get yourself some.

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### SCHOOL LIFE

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# Brief. . . . .

## EDUCATION AND GOVERNMENT

# Reports . . . . .

### Special assistant appointed

**C**OMMISSIONER Derthick has named Frederick J. Moffitt to be his special assistant to work with him on special projects and programing and policy.

Dr. Moffitt brings to the Office wide experience as a teacher, principal, superintendent, and State education official (for 17 years he was with the New York State Department of Education). In his most recent position he was in charge of professional publications at the Silver Burdett Publishing Company.

Dr. Moffitt has been a contributing editor to *Nation's Schools* for 20 years.

### Films for the deaf

**T**HE Office of Education is launching the captioned film for the deaf program with five Walt Disney films: "White Wilderness," "Living Desert," "Treasure Island," "Littlest Outlaw," and "Dumbo," the gift of E. B. Boatner, president of Captioned Films, Inc. They are 16-mm feature-length films with printed captions prepared by writers who are deaf.

The films will be loaned without charge to qualified social, civic, and religious groups of deaf adults and to schools and classes for the deaf. The Office is now certifying groups requesting loans and will begin booking films about April 15. It will obtain other films for loan under the program as funds permit.

The captioned film for the deaf

program, authorized by Congress in 1958, operates under Public Law 85-905. Its purpose is to help overcome the social and cultural isolation of deaf people by providing a service similar to that provided to blind people by talking books.

### Preventing delinquency

**S**ERVICES that help a child with his problems will do more to prevent him from becoming a delinquent than punishment, law, recreation, or curfew, according to a new publication of the Children's Bureau of the Department of Health, Education, and Welfare, *A Look at Juvenile Delinquency*.

Prepared as a guide for the public, particularly for community leaders, the publication emphasizes prevention because "unmaking delinquency is far more difficult than preventing it." It describes action parents can take in the home and in the community to prevent a child's developing delinquent behavior and tells how schools can spot delinquents and how civic associations, such as parent-teacher associations, can work with social service groups to help children with emotional and personality problems. The booklet urges citizens to take a more active part in providing preventive measures and remedial treatment.

*A Look at Juvenile Delinquency* sells for 25 cents from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.

### Orientation to the deaf

**S**EVERAL times a year Gallaudet College, the world's only college for the deaf, offers a 4-week course in "Orientation to the Deaf" for persons concerned with the welfare of the deaf. Fifteen persons are now enrolled in such a program—vocational rehabilitation workers, educators, public and religious welfare workers, a Federal employee, and a student minister, from 10 States and the District of Columbia.

The next "Orientation to the Deaf" program will begin March 16. Through a grant from the Office of Vocational Rehabilitation of the Department of Health, Education, and Welfare, Gallaudet will provide free tuition and maintenance and transportation to and from Washington, D.C. For more information on subsequent sessions, write to the Registrar, Gallaudet College, 7th and Florida Avenue NE., Washington 2, D.C.

Gallaudet College held the first of these orientation programs in February 1955; since then 85 persons from 32 States, the District of Columbia, and Puerto Rico have taken part.

### Conferences for college teachers

**T**HE National Science Foundation has granted \$275,000 to colleges and universities for 16 summer conferences for 500 college teachers of science and mathematics designed to strengthen mastery of new develop-

ments in science and mathematics and to increase effectiveness in the classroom. To give participants who will teach during summer terms an opportunity to become familiar with new material before the terms begin, the conferences will last no longer than 4 weeks. Participants will receive stipends of up to \$15 a day and travel allowances.

Because the conferences will choose participants, *not* the National Science Foundation, inquiries for information and application forms must be made to conference directors. To obtain a list of the conferences, write to the National Science Foundation, 1951 Constitution Avenue NW., Washington 25, D.C.

### Soviet papers translated

SCIENTISTS in the health fields, through the Public Health Services's Russian translation program, which began in 1957, now have access in English to 5,000 papers and 13,200 abstracts of other papers issued by the Soviet Union on developments in medicine. Although it is too early to measure the effect of these papers on U.S. medical sciences, already they have increased our knowledge of development in Soviet medicine and are adding stimulus to the scientist-to-scientist exchange program.

Since 1957 there has been a steady increase in the amount of translation. For instance, in that year the program translated 27 issues of Soviet medical journals; in 1959, 84. Other translations include important monographs on biomedical subjects, and excerpts from Soviet abstract journals. The program also offers supporting material such as a directory of medical and biological institutes in the U.S.S.R.

The National Institutes of Health administers the program and closely coordinates it with like programs conducted by other Federal agencies interested in Soviet medical research. Such agencies include the National Science Foundation, the Department of Commerce, and the Atomic Energy Commission.

### Conference publications

WERE it not for the printed word, the intellectual stimulation of the White House Conference on Children and Youth would be limited to the 7,000 participants who meet in Washington March 27 to April 2—and to those they will reach afterward.

But there *is* the printed word, and it has been used to make available to those not attending the conference the same publications the participants will receive.

The entire official library sells for \$10 plus \$1.30 for postage and handling, but titles can also be bought separately: *The Nation's Children*, 31 chapters by experts in various fields (3 volumes, \$6 for the set, plus 50 cents for postage and handling); *Children in a Changing World*, a book of graphs and charts (\$1.25 plus 25 cents); a State reports digest and a national organizations digest (each, \$1.50 plus 25 cents); and the conference proceedings (\$2.25 plus \$1.30). Order from the Publications Division, White House Conference on Children and Youth, 330 Independence Avenue SW., Washington 25, D.C.

### Boy Scouts jubilee

THIS year, the Boy Scouts of America celebrate their 50th year as an organization. Saluting them on the occasion of their golden anniversary jubilee, Commissioner Derthick has sent the president of their national council this message:

*Upon this golden jubilee anniversary occasion, I sincerely wish to congratulate both the alumni of the Boy Scout organization, totaling nearly 20 million, and today's active Boy Scouts and volunteer leaders, numbering about 5 million.*

*Educational programs and activities of the Boy Scouts during the past 50 years have strengthened the moral fibre of our Nation's youth and have given boys invaluable training for their roles as adult citizens.*

The Boy Scouts will hold many celebrations, both nationally and locally, throughout the year. A special event

will be the opening of the Johnston Historical Museum at national council headquarters in New Brunswick, N.J.

Commissioner Derthick is a member of the Boy Scouts of America School Service Committee Relationship Division, 1959-60.

### Regional representatives

EACH of the nine regional offices of the Department of Health, Education, and Welfare now has a representative to coordinate Office field services, much expanded in the last several years because of new responsibilities given to the Office by the Congress.

Names of the representatives by regions are these:

Region I, Boston: Donald C. DeHart  
Region II, New York: Herman L. Offner  
Region III, Charlottesville: Carl E. Seifert  
Region IV, Atlanta: James M. Smith  
Region V, Chicago: Eric R. Baber  
Region VI, Dallas: Hollis A. Moore, Sr.  
Region VII, Kansas City, Mo.: Ralph Becker  
Region VIII, Denver: Lloyd A. Garrison  
Region IX, San Francisco: Richard B. Farnsworth

### Rehabilitation periodical

ON February 27, the Office of Vocational Rehabilitation released the first edition of a new bimonthly periodical *Rehabilitation Record*. The 40-page publication will review activities of the Federal-State program for vocational rehabilitation, particularly research supported by OVR.

The first issue contains 11 articles on such subjects as training of rehabilitation workers, blindness, older workers, and State operations. Contributors include Arthur S. Flemming, Secretary of Health, Education, and Welfare, and Mary E. Switzer, director of the Office of Vocational Rehabilitation.

Subscriptions are \$1.75 a year (single copies, 30 cents) from the Superintendent of Documents, Government Printing Office, Washington 25, D.C.



# THE SCHOOL ADMINISTRATOR'S RESPONSIBILITY

## *for Providing an Adequate Program of Adult Education*



By **THOMAS D. BAILEY**  
*Florida State Superintendent  
of Public Instruction*

**N**OT LONG AGO Margaret Mead posed this question:

Is it not possible that an educational system that was designed to teach what was known to little children and to a selected few young men may not fit a world in which the most important factors in everyone's life are those that are not yet, but soon will be known?<sup>1</sup>

Dr. Mead makes the point that our great problem in education is related to the fantastic change in the rate of change in our society. This change, she implies, necessitates a break with the past—a change from the “vertical” to a “lateral” transmission of knowledge.

All of us realize that we are living in a period of rapid change. We see evidences of it on every hand, we hear reinforcing statements. Yet how diligently have we in education sought to understand the magnitude of the scientific and technological change sweeping our Nation? How much have we tried to bring into focus its implications for education?

To help us understand the change in the rate of change, I should like to use an illustration I heard recently from Walter Shaw at a conference in Florida.

Suppose, he said, that mankind has had 50,000 years of history. To make this time more comprehensible let's

*THE ADULT EDUCATION SECTION of the Office of Education has made a practice of holding, during the annual convention of the American Association of School Administrators, a meeting with other leaders in adult education and in education generally, in order to seek advice and to report on activities of the Section. This year, at Atlantic City, February 12, the meeting took the form of a dinner for school administrators, with a program that focused attention on adult education as one of the major levels of education and on the urgent need for making it a public responsibility. The address of the evening, slightly abridged, is published here.*

*Also on the program was a panel discussion by Ben Willis, general superintendent of schools, Chicago; Thurman White, director of extension, University of Oklahoma; Robert Luke, executive secretary, National Association of Public School Adult Educators; Edward Rutter, superintendent of schools, Radnor Township, Pa.; and Earl J. McGrath, executive director, Institute of Higher Education, Teachers College, Columbia University.*

*Among the guests were Commissioner Derthick and Deputy Commissioner Reed, and the presidents of these organizations: Adult Education Association of the U.S.A., National Association of Public School Adult Educators, National Congress of Parents and Teachers, National Education Association, and National School Boards Association.—AMBROSE CALIVER, chief, Adult Education Section.*

compress it into 50 years, the age of many of us here. By this scale, we stopped being cavemen 10 years ago. Five years ago we invented pictorial writing. Two years ago Christianity was born. Fifteen months ago we got our first printing press. Ten days ago electricity was put into practical use. Yesterday morning, the first airplane flew, and radio was invented last night; television came into being this afternoon; and the commercial jet was invented since I started talking.

Let's take speed of travel as an indicator of our technological growth. How fast could man travel 50,000 years ago? Probably no faster than the fastest horse, and the top speed of a horse remained man's top speed

until the invention of the steam locomotive in the early 1800's.

From then on man began to cover the miles faster and faster. In 1910 the U.S. Army let a contract for its first military airplane, specifying that it be able to fly at least 40 miles an hour. The completed model actually flew 42. In 1925 the winner of the Indianapolis Speedway Race exceeded 100 miles an hour. Twenty-five years later, near the end of World War II, a plane was perfected that could fly 470 miles an hour, but its speed seemed so fantastic that it was kept top secret for months.

Then something happened. In 1945, man broke the sound barrier, and suddenly all his former progress was reduced to a crawl. Within 12

<sup>1</sup> Margaret Mead, "A Redefinition of Education," *NEA Journal*, October 1959, p. 16.

years he had created space machines that would travel at 13,000 miles an hour. His speed graph had suddenly taken a right angle turn!

Yes, 1945 was the year! That was the year somebody threw away the world we used to live in—the world in which we were born, reared, and educated. Now science is rapidly reshaping our lives. Millions of jobs have changed completely overnight. Thousands of new kinds of jobs are being created; thousands of others are being eliminated altogether. And for the vast majority of these jobs we need educated and trained workers.

When I started to school, common laborers outnumbered professional workers by almost 3 to 1. Today, the situation is practically reversed; there are more than twice as many professional workers as laborers. By 1975, we are told, only 4 percent of our total labor force will be unskilled.<sup>2</sup>

Yes, this is truly an age of change—an age in which people will not live their lives in the world into which they were born, nor will they die in the world in which they matured. Someone commented to me recently that ours is the first generation of parents who cannot surely tell our children what the future will be like.

Tonight I shall discuss only one of the many implications this change has for education—the one that seems to stand out above all others. This is the fact that in the age we are entering, no one's education can ever be considered "complete." It can never be—things will be happening too fast. The knowledge on which everyday decisions must be based will change too rapidly. Systematic, continuing education will be absolutely necessary for everyone who hopes to fulfill his responsibilities to society.

The idea we once held, that adult education has strictly a "remedial" function for those who have had little or no formal education, is no longer valid. Adult education must now serve both the educated and the un-

dereducated. In fact, on those with the heaviest responsibilities will fall the greatest necessity for continued learning. The job of the teacher will be particularly difficult and demanding, for seldom will he be able, as teachers in times past have been, to teach what was learned years ago. More often he will be required to teach what was learned yesterday!

Robert Blakely has said that in the modern world the individual whose education is not continuous will be dangerous. I want to underscore that statement. Moreover, the person in a position of leadership and public responsibility will, without continuous education, be the most dangerous of all—more dangerous even than the totally illiterate person, for his decisions and actions, based upon obsolete knowledge, will affect far more people.

What am I saying, then? I am saying that in the years ahead continuous education will be the greatest single resource for meeting the challenge of the space age. Not only will *more* education be required, but a *new kind* of education—new in organization, new in content, and new in method. It will have to be organized to serve all age groups. The content of it will be influenced not only by rapid changes in substantive knowledge but also by the increasing sophistication of students of all ages, sophistication brought about by the mass media, particularly television.

Community schools must come to serve the *whole community—day and night, winter and summer*. They must become the "uncommon schools" that Henry David Thoreau<sup>3</sup> called for more than a century ago.

Providing education for all is a tremendous challenge, and an urgent one. More urgent, I am afraid, than most of us realize, for it is intimately geared with the prospect of our very survival as a nation. It is a challenge we in public education cannot escape: the very magnitude of the task points to our public schools as the most logi-

cal instrument by which the job can be done.

Let us take a brief look at the job before us, in the hope that we can bring into better focus our particular responsibilities as public school administrators.

Our first glance reveals an unhappy picture. Only 10 States give systematic support to the education of adults; yet more than 60 million Americans 25 years old or older have not completed high school, 44 million have not completed the ninth grade, and almost 10 million are functionally illiterate. These are the individuals who will sustain the heaviest blow in the years just ahead. They will be our social ciphers, our economic liabilities, unless we do something for them. Their number is too great; we cannot ignore them.

A second glance shows another unhappy fact. Despite our efforts to prevent them, an appalling number of our young people are still leaving school early. Retention studies show that about 40 percent of the children who enter the fifth grade drop out before they reach graduation from high school.<sup>4</sup> Other studies reveal that two of every three school districts make no organized effort to encourage this 40 percent to continue their formal education as adults.<sup>5</sup> At a time when the Nation must make the very best use of its human resources, such waste is dreadful.

A third glance shows us the millions of Americans who must be re-educated and retrained as a result of automation and the new technology. During the 1960's, automation in industry will increase sharply. Thousands upon thousands of jobs will disappear, and the holders of these jobs will have to move into newly created jobs in sales, servicing, and distribution—branches of industry which will expand rapidly to take care of the in-

<sup>2</sup> From information compiled by the Educational Statistics Branch, Office of Education, U.S. Department of Health, Education, and Welfare. Sept. 22, 1958.

<sup>3</sup> Edward B. Olds, *Financing Adult Education*. Washington, D.C., Adult Education Association of the U.S.A. 1954.

<sup>4</sup> U.S. Department of Commerce, Bureau of the Census, and U.S. Department of Labor, Bureau of Labor Statistics.

<sup>5</sup> Henry David Thoreau, *Walden*. Boston: Houghton Mifflin and Company. 1906. p. 121.



—University of California, Los Angeles

**"An inherent desire for self-improvement and a better life is a basic human motive."**

creased production made possible by automation.

The switch from manual to automated production will be extensive and sudden; so will be the displacement and realignment it will cause. This suddenness makes the problem acute. To survive the change, thousands of workers will have to receive more formal education as well as new kinds of occupational training. Already the listings by the Department of Labor show 60 jobs for which there is a shortage of qualified workers; each job requires a high-school education.

The evidence is clear that education and skills are the keys to steady employment. Records of the Labor Department<sup>6</sup> show that the employment rate among unskilled workers is more than five times that of professional and technical workers.

Tied in closely with the dramatic changes in science and technology have come equally rapid and extensive changes in our old patterns of home and family life. Relations between child and parent, between individuals and groups, between institutions and government, and between citizens and community are increasingly complex. The same individ-

uals who find themselves caught in the swirl of technological revolution and who need reeducation as workers also find themselves increasingly in need of reeducation as individuals, parents, and citizens. Happily, we know that industry, community agencies, and other organizations will help greatly to provide this reeducation through stepped-up programs of in-service education and training. They are already doing a great deal. But the nature of the problem makes it a *public* responsibility; the welfare of thousands of citizens and the Nation's economy is at stake.

Many other aspects of this problem cry for better statesmanship than we have hitherto given, but time permits me to mention only one other: the increasing percentage of old people in our population. In my early childhood, when the total population of this country was 76 million, the number of people over 65 was slightly more than 3 million. By 1950 the total population had doubled, but the number of people over 65 had more than quadrupled—to over 12 million. Today this age group exceeds 15 million and is growing by more than 300,000 a year. By 1975, more than 21 million people will be over 65.

Advances in medical science, better control of communicable diseases, improved nutrition, and higher standards of living are making us a nation

of older and older people. The lengthening life expectancy in the United States shows that this is true. In the year 1800 life expectancy at birth was 30 years; in 1900 it was 47 years; by 1960 it had jumped to more than 70 years. Predictions are that by the year 2000 life expectancy in the United States will be 100 years, and that eventually the normal life span will be 150 years.

With an increasing life expectancy and with the prospect of a 24-30 hour work week, it may be that in the years ahead *Leisure* and not *Labor* will be the chief problem in our lives. The preparation of people of all ages for worthy use of leisure and the retention of older people in socially useful roles are a great challenge for education.

Down through the years the older group in our adult population has been the less educated group. This is understandably so, and until recent years it was of little public concern.

But now, in this age of change, it is a different matter. Public policy must give direction to this change if we are to benefit from it as a nation and as a people. With a larger and larger proportion of our adult population reaching old age, it is inevitable that public policy will be increasingly influenced by the older citizens. Herein lies a great challenge: Enlight-

<sup>6</sup>U.S. Department of Labor, Bureau of Labor Statistics. *Employment and Earnings*. Vol. 6, No. 5. November 1959. p. 7.

ened public policy is a product of an enlightened people, and in the space age ahead, no one, neither the young nor the old, can be enlightened without continuing education.

Everything I have said thus far adds to this: More than we are willing to admit, many an American citizen is in trouble. His occupational skills have become outmoded and he is being forced into a new kind of life, equipped only with old patterns of behavior. Material splendor and increased leisure have not brought him social tranquility or personal peace of mind—they have only given him more time to ponder his dilemma. This is not a pleasant picture, and we educators cannot remain comfortable about it much longer.

Premier Khrushchev has stated emphatically that he intends to outstrip us economically. In a very realistic way the Soviet government recognizes the importance of education to this purpose. Robert Luke of the National Education Association has recently returned from the U.S.S.R. He tells us that the Soviet government has already stamped out adult illiteracy, and that it has made the education of adults—academically, vocationally, and culturally—the object of organized, systematic and determined effort on the part of the Soviet government.

In a free society dedicated to the worth of the individual and to the development of his personality, the process of education becomes an end in itself. Ignorance and dignity are incompatible; this fact of itself is compelling enough to establish throughout America the belief that continuing education for all citizens is a public necessity and a public responsibility. But now, considering Premier Khrushchev's intention, we have another motivation—our own survival as a nation.

Last year John Gardner, president of the Carnegie Corporation, said: "If we believe what we profess concerning the worth of the individual, then the idea of individual fulfillment within a framework of moral purpose must become our deepest concern, our

national preoccupation, our passion, our obsession."<sup>7</sup> I heartily concur. I think that every State in the Nation should have a legal framework within which adult education can function as an integral part of its public educational system. Only if education is woven into the fabric of State school law will there be public commitment to it, and financial support of it, to insure its continuation and the fulfillment of its purpose. Adult education is, in reality, the fourth level of public education; elementary, secondary, and higher education lead into it. It is the remaining major step we must take to round out the education of our people. Never before has the need for this step been so urgent.

First of all, the profession itself must recognize the need and get busy. It is disturbing to hear occasional reports that professional educators themselves are standing in the way of adding adult education service to our public school program; they probably fear that such a step would weaken the public effort toward the education of children. On this point, I want to share with you a recent statement by Governor LeRoy Collins of our State, who has always demonstrated a strong personal commitment to education at all levels:

Perhaps we have not been too clear in our understanding of the function of adult education and of its relationship to programs for the education of children. It is the adult population that is immediately facing the problem of adjustment to changing agricultural, industrial, commercial, economic, and cultural conditions. They are the voting citizens and upon their wisdom depends the fate of our political life. Is there not then a possibility that a program of reeducation for them is an economy measure, instead of an expense, inasmuch as it should add immediately to their productivity, health, and effectiveness as citizens? Is it not possible that reeducated adults will give to their children richer cultural advantages which in turn will be reflected in the quality and quantity of learning which our children will obtain in their regular schooling? The

<sup>7</sup> John W. Gardner. *The Servant of All Our Purposes*. The Carnegie Corporation of New York. 1958. p. 5.

relationship between the cultural level of a community and the educational outcomes of schooling is a well-known fact.

Experience convinces me that enactment of legislation that will make it possible for every community in every State to provide a well-rounded program of education for all citizens who desire it and who can benefit from it depends heavily on professional leaders working with organized groups of lay citizens. Professional leadership must exist at all levels—national, State, and local—if we are to get the job done. Every chief State school officer is a key person in this effort. If he has a strong commitment and is willing to voice it, progress will be easier.

These are our larger needs—our overall objectives. What are our responsibilities along the way?

Wherever public school adult education programs are in operation or new ones are being initiated, the local superintendent of schools has responsibilities that deserve serious consideration. The first of these is to select and assign competent, professionally trained leaders for these programs. The organization, planning, and day-to-day administration of educational programs for mature voluntary participants require leaders with specialized professional training. The effectiveness of adult programs, in terms of their fundamental purposes, will be in direct proportion to the quality of leadership we assign to them. To foist off on our adult citizens the misfits and the unsuccessful administrators and teachers from other parts of the school system is not only an admission of weakness on the part of our local school officers but the surest way I know of undermining and weakening public support of our entire school program. After all, these people whose intelligence we insult by assigning to them the castoffs and misfits are the very same people who must vote the taxes. It is their children we teach in the daytime. How better can we win their enthusiastic support for a good overall school program than by giving them



good school experiences themselves? And how more quickly can we lose their support than by making their personal experiences unrewarding?

We school administrators must unify our efforts to get colleges and universities to give more attention to the need for highly trained administrators and teachers for these programs. We need more professors in colleges of education with outstanding abilities as administrators and teacher trainers for expanding public school adult education programs. But the preparing of full-time administrators and teachers, customarily and properly done at the graduate level, is not our only need. Far from it. Most of the thousands of teachers in adult education are part-time teachers, who are the regular, full-time day teachers of our children and youth. They need special preparation to be good teachers of adults. Is it not logical and desirable that colleges and universities should give them, as part of their professional preparation, a good foundation in the particular skills and requirements for this kind of service? Superintendents of schools can have great influence in bringing this about.

I notice that local superintendents frequently overlook one of the most natural and effective ways of interpreting the total school programs to their communities. Through specially arranged seminars, forums, lecture series, discussion groups, and other activities dealing with educational issues, particularly those bearing on the local situation, the adult education program can render valuable service in keeping the public informed about their schools. This is one of the many ways in which adult education can serve all education. Professionally trained adult educators are expert at identifying and tapping community resources for education. The school system can attract as both leaders and learners many citizens of the community, and through cosponsorship of educational activities it can gain the support of many organized community groups for the community school program.

An important responsibility of the superintendent of schools, at both the State and the local level, is that of providing an organizational structure within which adult education can function effectively. Its organizational setting should facilitate the development and effectiveness of the program and give it the visibility and status it deserves as a major segment of the total school program.

The superintendent also has the responsibility for formulating and establishing appropriate policies and priorities to guide the development of adult education programs and for establishing a proper framework of operating policies that will insure the cohesiveness and continuity of his total program. Staff coordination and planning are essential to these ends. The director of adult education programs operating under public school auspices should, as a member of the superintendent's staff, participate in the same manner and with comparable responsibility and status as directors of other educational programs.

The superintendent has the continuing responsibility of working with his director of adult education and with citizens advisory groups in formulating and establishing adult education program priorities and developing criteria for determining priority classification and method of financing of specific program offerings. The superintendent holds the final responsibility for insuring that adult program activities are in the public interest and are characterized by substantial educational content, widespread application, and social usefulness. These characteristics are essential to local programs if they are to serve community needs.

I have discussed the changing nature of our society and the demands on persons of all ages and in all walks of life to continue the systematic pursuit of knowledge. I have discussed the task of providing opportunities for continued learning for all of our citizens and mentioned some responsibilities of school administrators, particularly superintendents of schools, for providing adequate programs of

adult education. But what is an "adequate" program?

I would not presume to tell you what constitutes an adequate program of adult education for *your* community. Such a program must grow out of the needs of individual citizens of the particular community it serves, and at the same time it must provide the kinds of education our society requires of these citizens for its own growth and improvement. Obviously, the educational needs of individuals vary from one community to another, and the priorities assigned to specific needs will also vary because of differences in the intensity of individual needs between communities. Consequently, no program of adult education can be adequate unless it is tailored specifically to fit the community it seeks to serve.

An inherent desire for self-improvement and a better life is a basic human motive. As individuals, we tend to be preoccupied with improving our physical well-being and enjoyment of life, resolving our psychic disturbances, and improving our relations with others. Adult education programs must recognize these broad areas of human interest and need by providing program activities designed to help adults improve themselves as individuals, as parents, as workers, and as citizens.

To meet the challenge of the space age, the curriculum of adult education will have to provide studies in subjects as current as the morning headlines and as old as organized knowledge; as functional as the skills of a new job and as rewarding as the humanities; as vital as pending legislation and as sensitive as human relations; as close as a community problem and as remote as a missile's orbit; as intimate as family living and as public as international peace; as elementary as the three R's and as advanced as the educational needs of the adult community it proposes to serve.

I do not doubt for a moment that we can have this kind of curriculum for adult education. All that we need is a willingness to consolidate our resources and put forth the effort.



# Science Fairs



By RICHARD M. HARBECK  
*Research Assistant, Instruction,  
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## AND SCHOOL PUBLIC RELATIONS

**S**PRINGTIME is fair time—science fair time, that is. Tens of thousands of boys and girls, from bright-eyed elementary pupils to serious-minded high school seniors, are busy working on science projects. Thousands of teachers, scientists, engineers, and other community leaders are investing countless hours and valuable energy in answering questions, encouraging and guiding pupils, correcting mistakes, and thoroughly enjoying themselves. Hundreds of committees, looking forward to the first day of the fair, are planning and promoting projects, raising money, and wondering whether any projects will be finished in time. More than a few parents are hopelessly bewildered with the dinner-table talk about rockets and atoms, dinosaurs and parameria, and tidal-wave power and microwave transmission.

The science fair is a kind of culmination of student activity, a kind of crowning glory for individual achievement in the laboratory. When a pupil studies a single scientific problem in detail and develops a display of findings for his classmates, he has completed a project. When several pupils complete individual projects and display them together, they have set up a science exhibit. When an exhibit is evaluated and special distinction is accorded the projects rated highest, the exhibit may properly be called a science fair. Local school science fairs, developing from such natural processes as this and from intercommunity exchange of ideas, have become an accepted part of school activity programs of thou-

sands of elementary and secondary schools.

The best projects from many local fairs are often brought together in area, regional, or State fairs. In 1950, 13 regional fairs joined with Science Service of Washington, D.C., in establishing the First National Science Fair, which was held in Philadelphia. The Tenth National Science Fair, held in Hartford, Conn., in 1959, included the two best exhibits from each of 168 regional fairs. There are also several large regional and State fairs which are not affiliated with the National Fair but which stimulate local schools to develop science exhibits and fairs.

Each project represented at a science fair has, of course, its own value to start with and accomplishes its main purposes long before it ever reaches the fair. Ever since schools began, teachers have found it desirable to encourage their pupils to develop individual studies or projects, provided the projects are creative and educative and more effective than other instructional devices for leading pupils to higher intellectual levels. Science teachers have found that certain kinds of projects are invaluable aids to them in identifying talent, arousing interest, and providing basic knowledge, and in encouraging pupils to develop research techniques.

But the science fair also has its own contribution to make. The science fair, no matter what its location or level, has three main purposes:

1. The science fair should help meet the individual needs of the pupil by

providing a means for him to discover his own abilities or lack of them in science and mathematics, to exercise his abilities to the maximum, to receive personal recognition for his intellectual achievements, and to express himself in a meaningful way to others.

2. The science fair should help meet certain curricular or school program needs by offering teachers and other staff members a means of making full use of their own special interests and abilities; of stimulating pupils' interests in difficult studies; of acquiring information based on a performance test of a pupil's scientific and technical abilities which should be useful in individual guidance; and of giving definite direction for special advanced programs for superior and gifted pupils.

3. The science fair should help meet certain public needs by providing opportunities for displaying intellectual and technical accomplishments of school girls and boys, for stimulating interest in current discoveries and advances in pure and applied science and mathematics, for revitalizing faith in the abilities of modern youth, and for encouraging members of the community to take part in a school program.

I do not wish to argue here the worth of these purposes or the extent to which particular science fairs achieve them. I assume both the worth and the achievement, and on that basis proceed to my main theme:

*That science fairs can help insure good relations, both within the school and between the school and the public—an invaluable accomplishment in these days of searching criticism—and that a fair's success in this direction will be determined by the measure of its adherence to the threefold purpose I have outlined.*

Science fairs are of value in developing good relations within the school. For example, they offer an opportunity for boards of education and school administrators to demonstrate their interest in providing for sound training in the sciences and mathematics. Today, when schools are under attack, there is danger of an anti-intellectual climate developing within a school system. Pupils as well as faculty members are aware of the disproportionate amount of news space devoted to athletics and other nonacademic school programs. Neither the newspapers and their public nor school officials and their professional staffs are at fault—there are few school events that meet the papers' criteria of newsworthiness. But science fairs are newsworthy, and when they are publicized in local papers both teachers and pupils have an opportunity to see their intellectual and technical accomplishments recognized. Such public recognition, reflecting the general interest of society, becomes a powerful motivational

force not only to the boys and girls participating in the fair but also to others in the school.

When teachers are consulted as experts by their pupils and see the physical results of their guidance, they are encouraged to become more competent professionally. More important, teachers find an opportunity to work with boys and girls as individuals with specific problems, of different levels of ability, from different backgrounds, and on the subjects of their interest. A teacher who is successful one year with one or two pupils will very likely search for special abilities among more of her pupils the next year.

Pupils working on science projects use information drawn from subjects other than mathematics and science. They usually find it necessary to ask advice from English, art, and shop teachers and school librarians. In this way they break down traditional barriers, build natural bridges between major subjects, and stimulate interdepartmental cooperation and good will among staff members.

In their efforts to achieve good internal relations values from a science fair, many schools have found it useful to—

- Invite school science clubs to appoint members to help set up the fair and serve as guides.

- Provide detailed printed directions for teachers and pupils well in advance of the fair—preferably at the fall opening of school.

- Make frequent announcements about it.

- Give full credit to all pupils and teachers participating in it.

- Make participation in it voluntary for teachers and pupils.

- Publish a science fair newsletter with pupil reporters in each participating school; mention as many names as possible in it.

- Insist that the chairman or co-chairman be a science teacher.

Science fairs are of value to a school in developing good public relations. The school community can gain in at least three ways from the science fair: By increasing its awareness of modern science, by observing results of the educational program, and by helping with a school program. Obviously, if the only purpose of a science fair were to provide a show for the public, its value would be highly questionable.

Of the many science fairs with which I have been directly or in-



Patricia Van de Vyver, 17, of Detroit, won an award with her project in the extraction and separation of pigments in plants.



Robert S. Dickey, 16, of Fort Worth, has made a good beginning in his career as a research scientist with his project in embryology.



Joie Pierce Jones, 18, of Abilene, Tex., won both a National Science Fair and an Army award with his project in rocket design.

—Science Service, Inc.

directly concerned, none has failed to elicit from the persons attending a feeling of pride in their schools. I have noticed, too, that those attending them have generally been astounded at the depth of knowledge and understanding displayed by the boys and girls. They see projects that reflect the pupils' competence not only in science but also in library research, language, art, mathematics, and their ingenuity in using materials. Science fairs offer concrete evidence that the schools are emphasizing basic subject matter. To schools that have taken advantage of the public relations values of science fairs, the returns in public support and good will have more than paid them for their effort.

Few communities lack men and women with special interests and training in the various phases of science and mathematics—such people as doctors, nurses, dietitians, veterinarians, engineers, and professional scientists. Such people can usually be counted on to advise pupils on their projects, work on special committees, and serve as judges. Calling in local men and women not only ties the community still closer to its schools but also insures support for the science fair program and, by implication, the school program.

In their efforts to achieve the greatest public relations values from a science fair, schools have found the following ideas useful:

- Include representatives from local newspapers, radio and television stations, industrial public relations offices on various committees.
- Arrange for sufficient time for the public to view exhibits and announce the time continually, well in advance of the fair.
- Issue special invitations to important community leaders.
- Remember that the public likes to be identified with success. Keep preliminary estimates of numbers of projects and visitors low so that the results will meet or surpass expectations.
- Be sure that all judging is completely impartial and that top-rated projects meet all rules of the fair.
- Provide sufficient custodial help and trash containers to insure a continuously presentable display area. Let the public remember the projects, not excessive clutter.
- Schedule responsible persons—for example, science fair committee members and school officials—to be at the display areas at all times to provide information to reporters and other important visitors.
- Do not charge admission.
- If a P.T.A. or other meeting is to be held the same night as the fair, schedule it early before the exhibit opens, not after.
- Discourage commercial displays at the fair, as they invite comparison with certain kinds of science projects and may prevent full news coverage.
- Make full use of the human resources of the community in planning and operating the science fair.

The public relations values of a science fair may be effectively utilized if they are considered in planning it.

The values include stimulation of pupil interest in science and mathematics, development of leadership among staff members, and interdepartmental cooperation within the school. The public can see what the schools are doing.

Science fairs tend to create public awareness of some of the educational needs of today as compared with those of the preceding generation. Experience has shown that if this awareness is created, financial as well as verbal support of the school program will follow.

Human history becomes more and more a race between education and catastrophe.  
—H. G. Wells, *The Outline of History*



—Science Service, Inc.

Students waiting to enter the National Science Fair at Flint, Mich.

- Award all entrants at least a certificate of participation and give special credit to teachers and other advisers of winning students.
- Arrange for students with the best projects to be available to the public to discuss their projects or to answer questions.
- Keep sufficient records of individual pupils so that personal success stories growing out of the fair can be publicized.
- Be sure the fair is held at a place convenient to the public and with sufficient parking area. Let the public know that its welfare has been considered.



By WALTER H. GAUMNITZ, *Head, Rural Research and Statistics Unit*

## THE EXODUS OF THE ONE-TEACHER SCHOOL

**T**HE EVIDENCE is clear: The one-teacher school is rapidly disappearing from the American scene. For many years this smallest member of our school system has been undergoing changes. For a time it was said, "The little red schoolhouse is no longer red." Now many States can boast that the one-teacher school is no longer there. For them, the exodus is complete.

As we contemplate its passing, some would stop a moment to mourn the passing of a friend; others would stop to pay respectful homage to a fallen hero of yesteryear; and still others would pause to protest its going as an exchange for a "mess of potage." The one-teacher school probably fully deserves nostalgic attention of all these types. But I cannot dwell on them here. Instead I shall limit my brief review to current statistics on such schools, the rate of their disappearance, and their probable future.

As it is now more than 40 years since the one-teacher school reached its numerical high watermark in 1918, the year 1960 would seem to be a good time for such a review. In 1918 there was a total of 196,037 such schools; in 1958, the last year for which we have accurate figures, a total of 25,783. By 1958 three of the more urban States—Connecticut, New Jersey, and Rhode Island—had approached the zero mark. However, each of four Midwestern States—Iowa, Nebraska, South Dakota, and Wisconsin—still found need for at least 2,000, although they were enlarging their rural schools.

Analysis of current reports reveals that in most States total farm area to

be served, sparsity of population, climate, and road conditions continue to determine the extent to which one-teacher schools are retained.

The approximate number of one-teacher schools still functioning in 1958 is shown below.

| <i>Number of schools</i> | <i>States</i>                   |
|--------------------------|---------------------------------|
| Under 10.....            | R.I., N.J., Conn.               |
| 10-19.....               | Utah                            |
| 20-29.....               | Del., Md., S.C.                 |
| 30-39.....               | Ohio, La.                       |
| 40-49.....               | Mass., Fla., Ariz., Nev., Wash. |
| 50-59.....               | N.H.                            |
| 60-69.....               | Ga., N.C.                       |
| 70-79.....               | Idaho                           |
| 80-89.....               | Ind., N.M.                      |
| 90-99.....               | N.Y., Oreg.                     |
| 100-199.....             | Vt., Ark., Tex.                 |
| 200-299.....             | Maine, Ala., Colo., Wyo.        |
| 300-399.....             | Va., Calif.                     |
| 400-499.....             | Pa., Ill., Miss., Okla.         |
| 500-1,000.....           | Tenn., Mont.                    |
| 1,000-1,499.....         | Mich., Kans., Mo., W. Va.       |
| 1,500-1,999.....         | Minn., N. Dak., Ky.             |
| 2,000 or over.....       | Wis., Iowa, Nebr., S. Dak.      |

A summary of the number and percentage decreases of one-teacher schools by decades and by regions throws light on the extent and rate of the decrease geographically (see table 1). In the decade 1918-28 the percentage decrease was 20.4 for the Nation as a whole; for the next three decades the rate accelerated, to 22.3, 33.3, and 65.6. During the entire 40-year period the number of one-teacher schools in the entire United States decreased by 87.1 percent.

During the first two decades, 1918-38, the rate of decrease rose grad-

ually in all regions except the Plains, Lower Southeast, the Southwest, and the Far West; during the third, it showed an upward spurt in all regions except the Upper and Lower Southeast; and during the last, 1948-58, it rose rapidly in all regions except the Rocky Mountain States.

Between 1948 and 1958 the number of one-teacher schools was reduced from 74,844 to 25,783 (see table 2). During the early part of this decade about 7,500, or 10 percent of the total, disappeared annually; during the latter part, about 4,500 disappeared annually, but because by that time the total number of schools



This "little red schoolhouse," actually painted bright red, on the western rim of Washington State's Spokane valley, was built in 1903. Sixteen children, grades 1-6, attend it. A pump provides water; teacher and pupils do housekeeping; yet teaching techniques and aids are up to date. (Photograph and information from Mabel Aspden, reading skills consultant, Spokane County Schools.)



Table 1.—One-teacher schools: Number<sup>1</sup> and percentage decrease by geographic regions and decade, 1917-18—1957-58

| Region                         | 1917-18 | 1927-28 |                        | 1937-38 |                        | 1947-48 |                        | 1957-58             |                        | Decrease in percentage 1918-58 |
|--------------------------------|---------|---------|------------------------|---------|------------------------|---------|------------------------|---------------------|------------------------|--------------------------------|
|                                |         | Number  | Decrease in percentage | Number  | Decrease in percentage | Number  | Decrease in percentage | Number              | Decrease in percentage |                                |
| Continental United States..... | 196,037 | 156,066 | 20.4                   | 121,340 | 22.3                   | 74,844  | 38.3                   | <sup>2</sup> 25,783 | 65.6                   | 87.1                           |
| New England.....               | 6,147   | 4,766   | 22.5                   | 3,398   | 28.7                   | 1,700   | 50.0                   | 520                 | 69.4                   | 91.5                           |
| Mideast.....                   | 21,413  | 17,755  | 27.1                   | 11,178  | 37.0                   | 4,540   | 59.4                   | 549                 | 87.9                   | 97.4                           |
| Great Lakes.....               | 38,659  | 30,570  | 20.9                   | 23,436  | 23.3                   | 15,410  | 34.2                   | 3,830               | 74.1                   | 90.1                           |
| Plains.....                    | 51,956  | 46,413  | 10.7                   | 42,656  | 9.1                    | 28,578  | 33.0                   | 13,641              | 52.3                   | 73.7                           |
| Upper Southeast.....           | 21,876  | 17,721  | 19.0                   | 12,733  | 28.1                   | 9,163   | 28.0                   | 3,654               | 60.1                   | 83.3                           |
| Lower Southeast.....           | 30,276  | 19,409  | 35.9                   | 13,425  | 30.8                   | 8,958   | 33.3                   | 1,101               | 87.7                   | 96.4                           |
| Southwest.....                 | 11,713  | 8,251   | 29.6                   | 5,920   | 28.3                   | 2,874   | 51.5                   | 696                 | 75.8                   | 94.1                           |
| Rocky Mountain.....            | 7,598   | 6,471   | 14.8                   | 5,078   | 21.5                   | 2,159   | 57.5                   | 1,303               | 39.6                   | 82.9                           |
| Far West.....                  | 6,399   | 4,710   | 26.4                   | 3,516   | 26.4                   | 1,462   | 58.4                   | 489                 | 66.6                   | 92.4                           |

<sup>1</sup> For each year given, the totals contain partial estimates for a few of the States.

<sup>2</sup> Slightly higher than the estimate released earlier.

was smaller, the rate rose to 14 percent.

These figures point not only to the present rate of decrease but also to the future of the one-teacher schools (see foot of table 2). If the 14-percent rate continued through the school year 1958-59, there was a further decrease of 3,600, and if it continues through the 1959-60 school year, there will be an additional decrease, of about 3,000, leaving only about 19,000 in 1960. At this rate obviously many States will soon have none of these schools, particularly the States in which urbanization, road building, and reorganization programs have been and are moving forward rapidly.

The question naturally arises: When will this sturdy product of our pioneer system of public education disappear completely? Will its passing be all gain? Because there are still many wide open spaces and numerous areas with isolated homes, it seems reasonable to assume that some one-teacher schools will always be needed. As farms and ranches grow larger and modern pioneers press beyond the outposts of civilization, it even seems possible that a few new

small schools may be established. The factors in their retention are manifold and complex. There are definite limits beyond which children

cannot be transported daily to their schools. As we continue to emphasize the elimination of one-teacher schools, is it not good policy for us to determine their capacity for service and to help those remaining to be as effective as possible in serving the children who must be dependent on them?

Table 2.—One-teacher schools: Annual decrease in number and percentage, 1948 to 1960

| School year              | Number of 1-teacher schools | Decrease in number | Decrease in percentages |
|--------------------------|-----------------------------|--------------------|-------------------------|
| 1947-48....              | 74,844                      | .....              | .....                   |
| 1948-49 <sup>1</sup> ... | 67,348                      | 7,496              | 10.0                    |
| 1949-50....              | 59,852                      | 7,496              | 11.1                    |
| 1950-51 <sup>1</sup> ... | 55,297                      | 4,725              | 7.9                     |
| 1951-52....              | 50,742                      | 4,555              | 8.2                     |
| 1952-53 <sup>1</sup> ... | 46,783                      | 4,051              | 7.9                     |
| 1953-54....              | 42,825                      | 3,958              | 8.5                     |
| 1954-55....              | 38,513                      | 4,312              | 10.1                    |
| 1955-56....              | 34,964                      | 3,549              | 9.2                     |
| 1956-57....              | 30,129                      | 4,835              | 13.8                    |
| 1957-58 <sup>2</sup> ... | 25,783                      | 4,346              | 14.4                    |
| 1958-59 <sup>3</sup> ... | 22,183                      | 3,600              | 14.0                    |
| 1959-60 <sup>3</sup> ... | 19,000                      | 3,100              | 14.0                    |

<sup>1</sup> Estimated by taking half of biennial decrease.

<sup>2</sup> For several States data for the previous year were used in deriving the total.

<sup>3</sup> Projected by assuming a percentage decrease similar to that between 1956-57 and 1957-58.

#### OFFICE OF EDUCATION PUBLICATIONS ON SMALL SCHOOL DISTRICTS AND SMALL SCHOOLS

*Statistics of Local School Systems: 1955-56, Rural Counties, Chap. 3, Sec. 4, Biennial Survey of Education in the United States—1954-56 (60 cents)*

*Statistics of Public School Systems in 101 of the Most Rural Counties, 1955-56, Cir. 529 (20 cents)*

*Statistics of Rural Schools, A U.S. Summary, 1955-56, Cir. 565 (20 cents)*

*Selected Indexes of Rural School Finance in the United States, 1955-56, Cir. 566 (20 cents)*

*Small Schools Are Growing Larger—A Statistical Appraisal, Cir. 601 (20 cents)*



By KENNETH E. BROWN, *Specialist for Mathematics*

# Mathematics and Science Teachers QUALIFICATIONS AND TEACHING LOADS

NOT long ago President Eisenhower asked citizens to scrutinize their schools to see whether they were meeting "the stern demands of the era we are entering." Very likely many of the citizens following the President's suggestion have begun their scrutiny with teachers and pupils—for they are the heart of the school.

Because they realize that the school's success depends in large measure on the competence of the teachers, many citizens are looking closely at teachers—their preparation, experience, and work loads. And because they hear on every side from leaders in Government, education, business, and industry that to meet the stern demands of the era ahead men will need thorough training in mathematics and science, they are particularly interested in teachers of these subjects.

Visitors to some schools will be encouraged by the information they get; visitors to others will be discouraged; and perhaps all will ask for much information that is not available. Surely they will want to know how teachers in their school compare with others, what other cities and States are doing to improve teaching.

In the country as a whole nearly 5 million high school pupils are studying mathematics under about 75,000 teachers; and about the same number are studying science. Obviously the pupils are not divided equally among teachers. Some teachers have only one class; others have six; some have small classes; others large ones. Unfortunately the larger classes are in

the lower high school grades—which means that at the very time pupils need individual assistance in basic science and mathematics they are in larger classes where too often they get little.

A 1958 survey showed that mathematics and science teachers had many duties in addition to teaching the subjects of their specialization. For example, about 19 percent of the mathematics teachers also taught science; 13 percent, physical education; 7 percent, social sciences; 5 percent, English; 38 percent had one or more periods of study hall; 14 percent had one or more periods of guidance; 12 percent had administrative duties; and 6 percent had one or more periods of committee work. In small high schools mathematics teachers devoted 4 or more hours daily to extracurricular activities and in large high schools one-half of the teachers devoted 4 or more hours to such work. Very few of them had any help—the percentage of teachers who had non-certified teachers to assist them was negligible.

Since few studies have been made of the qualifications of science and mathematics teachers, we do not know how well qualified they are. And yet facts are necessary to improvement; they are vital to the Federal and State agencies, industrial organizations, and other groups conducting training programs, workshops, institutes, and conferences.

To help States and local school systems wishing to gather informa-

tion, the Office of Education has conducted a study<sup>1</sup> of the qualifications and teaching loads of teachers in three selected States. In summary, the study found that:

► Of the science and mathematics teachers, about 33 percent had the master's degree; 60 percent had all or part of their training in liberal arts colleges; 33 percent had an average mark in all subjects of A or B+ and less than 10 percent had an average of C or less; and three-fourths were married.

► Of the mathematics teachers, about 33 percent had a major in mathematics; they had an average of 23 semester hours in mathematics and 31 in education courses; 39 percent had not taken mathematics as advanced as the calculus; and 20 percent had taken their training before 1950.

► Of the science teachers, 64.3 percent held the baccalaureate degree; 33.3 percent held the master's degree and they had an average of 47 hours in science.

The study offers a pattern in techniques, forms for obtaining data, and procedures that school systems or States can easily adapt in making their own studies.

<sup>1</sup> *Qualifications and Teaching Loads of Mathematics and Science Teachers in Maryland, New Jersey, and Virginia*, by Kenneth E. Brown and Ellsworth S. Obourn. 1959. 101 p. 70 cents. (Cir. No. 575.)



By EUGENE P. McLOONE, Assistant Specialist, School Revenue

## STATE SUPPORT OF THE PUBLIC SCHOOLS

*"Many and varied forces determine the States' share of revenue"*

**I**N nearly all the discussions of public schools you hear these days the subject of money is sure to come up—money for buildings, money for new equipment, money for teachers' salaries—the list is endless. Many of the discussions end with the question: "Where's the money to come from?"

Instead of trying to answer that question, I want to review the changing pattern of school financial support during the past 20 years and to point out some of the influences on the amount the local schools receive from the State, hoping that the information will be helpful to citizens searching for answers.

Between 1937-38 and 1957-58 total revenue for public elementary and secondary schools increased more than fivefold, from \$2.2 billion to \$12.0 billion. During this period the pattern of support changed substantially: The amount from local revenue sources decreased from 69 to 55 percent; the amount from State support increased from 29 to 41 percent; and the amount from Federal sources increased from 1 to 4 percent.

Throughout this period property taxes, from which local school revenue is mainly derived, continued to be the major source of school revenue, even though the percentage of funds they were supplying was declining.

Nationwide, the percentage of total revenue for public elementary and secondary schools derived from State sources increased gradually during the period 1937-38-1957-58. Figures for individual States indicate that the increases in States contributing relatively small amounts of support

have been responsible for most of the overall rise. Throughout this period, many States maintained the same rank or changed their positions only slightly, on the basis of percentage of school funds derived from State revenues, as is evident in the accompanying chart.

Percentage figures for State support may be variously computed and reported. The figures used here represent State support as a percentage of total local, State, and Federal revenue for elementary and secondary schools.<sup>1</sup>

In this discussion, revenue includes funds the local school administrative unit receives from the usual revenue sources as well as funds expended on behalf of the local school district. For example, the figures on State support include funds for the operation of the State department of education and for State contributions to the retirement system. Funds the State derives from the sale of bonds and grants to local school districts and later State payments of interest on these bonds are considered as revenue since they do not incur an obligation of the local school district. State revenues for schools do not include State-shared taxes which are retained in or returned to the area in which they are collected, since they are regarded as local and not State revenue.

Money provided for school lunch and capital outlay also requires special classification. Local receipts

<sup>1</sup> See *Handbook II: Financial Accounting for Local and State School Systems*, Office of Education, Bulletin No. 4, 1957, for definitions and a complete classification of receipts.

On the chart of school revenue from State sources, 1937-38-1957-58, each bar shows the range in percentage; the short vertical line on the bar, the median percentage; and the stair-step line, the estimated percentage in 1957-58.

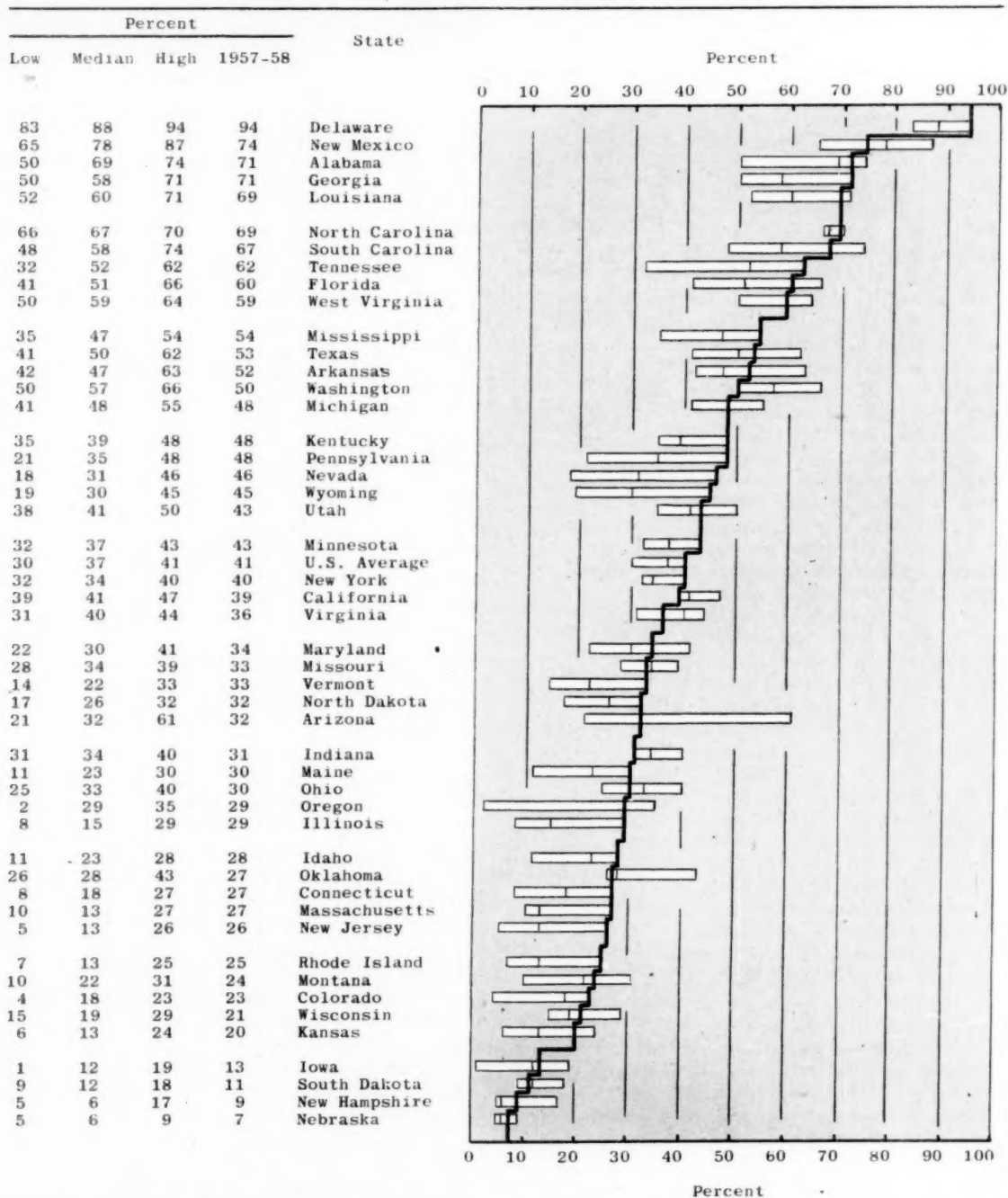
from fees and lunch sales are not included as they are nonrevenue receipts. Federal and State grants of cash and commodities for school lunch programs as well as local funds contributed to the support of the school lunch program are included in the revenue figures. Local funds derived from the sale of bonds for capital outlay are classified as nonrevenue receipts, and such funds are not included in the percentages presented in the chart.

School revenue provided from State and local sources may be designed to provide for essential school expenditures, but proportions from these two sources may also reflect the convictions of the State taxpayers that they should provide a given amount for school operation or that the local taxpayers should be encouraged to contribute a given amount to the schools.

The percentage of the total—local, State, and Federal—revenue from State sources is influenced by a number of factors including the tax sources authorized for use by the local school districts, the State tax system, limitations on local tax rates, and restrictions on school district indebtedness. Responsiveness of various taxes to economic conditions such as wage and price levels and the demands for State support of highways,

# Local school revenue from State sources: 1937-38—1957-58

(States listed in order by the percent for 1957-58)



public assistance, and other services also influence the percentage of funds available from State sources. Such influences partly explain the differences in support of schools by State governments.

Some States have acted in response to these forces; others have decided on a support plan for education which influences these forces. For example, North Carolina in the early thirties accepted State responsibility for the complete support of the basic school program. This decision committed the State to a long-range plan of providing a large percentage of total school support funds. Tax sources, limits on local taxes, and other forces became secondary. Other States, through the adoption of a foundation program supported by State and local revenue, have committed the State to provide a specified percentage of school support funds.

As these factors have operated in various States, the percentage of total revenue derived from the State has changed. For example, in the early thirties, constitutional amendments in Michigan, Ohio, and West Virginia placed limitations on the property tax rates and on local indebtedness. The percentage of State support subsequently increased because the loss of funds resulting from the limitation on local property taxes was made up by State aid from the proceeds of new State taxes.

As enrollment increased and the local systems needed additional support, these States raised the percentage of State support by providing funds for capital outlay. The percentage of State support in these States was therefore determined by local need for funds resulting from the loss of property tax revenue and by revenue available to the State from new taxes.

Percentages of funds provided by the State in Arkansas were also affected by local tax limitations. The percentage from State sources increased from 45 percent in 1937-38 to 63 percent in 1947-48. During this period, local taxes were limited to a maximum rate of 18 mills. Since

1943, voters in Arkansas have not been restricted to any rate, and the percentage from State sources has declined even though the dollar amounts have increased. This experience in Arkansas indicates that the percentage provided by the State may decline as restrictions on local taxes are eased.

#### Revenue Receipts

Additions to assets which do not incur an obligation that must be met at some future date and do not represent exchanges of property for money.

#### Nonrevenue Receipts

Amounts received which either incur an obligation that must be met at some future date or change the form of an asset from property to cash and therefore decrease the amount and value of school property. Money received from loans, sale of bonds, sale of property purchased from capital funds, and proceeds from insurance adjustments constitute most of the nonrevenue receipts.

—Handbook II

The responsiveness of taxes to economic conditions has also produced changes in the percentage from State sources. Different kinds of taxes vary widely in sensitivity to economic conditions and trends. Obviously when times are good and the economy is operating near full capacity, tax receipts increase even though the rates may not be raised. In recent years some States with increased revenue have approved more comprehensive school support programs or strengthened support of existing programs.

Kansas provides a clear picture of the influence on State support of a single State tax at the same rate responding to economic activity and price levels. When the State sales tax was levied, the surplus portions were allotted to property tax relief and a limited sum was designated for school support. A new State support plan for schools based upon sales tax revenue increased the percentage from

State sources for 1947-48. Continued increases of sales tax receipts allowed additional support of schools, and the percentage from State sources was again increased in 1949-50. Exclusive and continued use of the sales tax revenue for State support of schools has established a close relationship between the percentage provided by the State and the proceeds of that tax.

In other States the percentage supplied by the State is also affected by specific State taxes. States which have neither a sales nor an income tax, or which use these taxes for purposes other than school support, would very likely find it difficult to raise sufficient funds to establish a large percentage of State support. Such States might find it necessary to levy new taxes or raise rates of present taxes if they attempted to increase their support.

In giving these examples I have looked for a single force that could be identified as affecting the percentage provided by the State, but many and varied forces operate to determine the percentage of total local, State, Federal revenue provided by the State. The isolation of the different forces is helpful to citizens and others who attempt to determine the percentage that either the State or the localities should contribute to the support of schools.

In particular, States will need to consider the responsiveness to economic activity of separate tax sources and the general tax structure for school support if they wish to maintain or establish shares, expressed as a percentage of total revenue, to be provided by the State or local districts. The great variation of the State support patterns, as shown in the chart, indicates that revenue sources for schools in the different States are not equally responsive to changing economic conditions. Many States will therefore need to pay more attention to the elasticity and the built-in flexibility of taxes so that significant proportions of educational revenue will be responsive at all times to prevailing economic conditions.



# RESEARCH RELATED TO PUPILS WITH SPECIAL ABILITIES

*Report on the Office of Education's Cooperative Research Program*

By WILLIAM R. CARRIKER and WILLIAM ASHER

LAST MONTH *School Life* reported on cooperative research related to the education of mentally retarded children. With this article, it reports on research related to children with special abilities. Both Dr. Carriker, who prepared the January article, and Dr. Asher, who joins him this month, are research coordinators in the Cooperative Research Branch.

THE Cooperative Research Program of the Office of Education, which began in July 1956, now has 245 research projects, either under way or completed. Twenty-seven of them, for which the Federal Government is contributing \$1.5 million, are on children with special abilities.\* Some require as much as 5 years for completion, some as little as 6 months.

## SELECTED PROJECTS

Seven of the projects related to the education of the gifted are now completed, and these, together with six still in progress, will be discussed here, grouped somewhat arbitrarily in three general areas of investigation: (1) Identification and development, (2) classroom organization and special procedures, and (3) achievement and motivation.

\* All together there are 107 projects related to the problems of special education (43.6 percent of the total number in the program): including the 27 under consideration here, 46 bear on various other areas of special education and 61 are primarily concerned with the mentally retarded child.

## Identification and development

In all, there are 11 projects related to the identification and development of special abilities; two of these are completed.

*Identification and development of talent in heterogeneously grouped students in a general education program at the secondary-school level:* P. R. Klover, H. L. Coon, and E. J. Alberty of The Ohio State University sought to refine the concept of talent in adolescents and to identify the characteristics of talent evidenced by students in grades 7 through 12 in a general education program.

Their findings indicate that talented behavior is not restricted to any particular content or personality pattern nor is it fixed by heredity. The researchers conclude that the final test of talent is in the productiveness of the individual, that talent is more than intellect ("it is a function of the total personality"). They define talent as "the emergence in action of a product growing out of the unique qualities of the individual in their interaction with his external environment—the men, materials, and circumstances in his life." The final report describes the behavior of the unusually talented children observed in this study.

*Identification and classroom behavior of elementary school children each of whom is gifted in at least one of five different characteristics:* F. B. Davis and G. S. Lesser of Hunter College differentiated among and separated the intellectual abilities of

young gifted children. Psychological theory and evidence have often been equivocal on whether clear differentiation is possible. Traditionally, school systems have tested intelligence by using single-score tests to find a child's academic potential, but the method is valid only if, as we have assumed until recently, the various measures of academic ability are highly inter-correlated.

The researchers hypothesized from previous observations and research that there are at least five basic abilities or skills that fall within what is generally defined as intelligence and, by extension, are of specific importance to teachers of gifted children: Space conceptualization, verbal facility, number ability, reasoning, and knowledge of science.

For each of the five areas the researchers created a preliminary test, keeping four restrictions in mind: (1) The children generally could not read; (2) since only a few of the children could later be accommodated in the Hunter College school for gifted children (the plan was to enroll the highest scoring children in that school), the difficulty level for the age group—4 years, 3 months, to 5 years, 3 months—would have to be very high; (3) there should be a low degree of relationship among the tests; and (4) the children needed good motivation to perform well.

For each of the five basic abilities, Drs. Davis and Lesser, after screening and analyzing the preliminary test, constructed two new parallel forms and then devised a third form which they predict will be a measuring in-



strument at least as reliable as, and more efficient than, the forms they used in their research.

Children scoring high in at least one of the five abilities were selected for an experimental teaching program giving special attention to activities in which theoretically they would be highly productive. Since the group was small to begin with (27) and only 5 or 6 children scored high in each ability, the results of the teaching program can be considered only as tentative. Because of its short duration, the program did not produce enough evidence of its efficacy to be conclusive.

The scores obtained on the five tests appear to have meaning in the day-to-day world, for observers uninformed about the children's specific identity types were able to identify differences among them from the scores. The children scoring highest for one ability also scored highest in that same area of giftedness when the group took another but similar type of differentiated-abilities test.

The investigators observed an intriguing side effect: a possible relation between the child's personality "type" and the test in which he scored highest. Although they call their observations "merely impressions," these "impressions" are likely to stir the imagination of teachers and researchers and to make them ask, for instance, why 4½-year-old children selected for their outstanding performance on fairly unusual intellectual tests are exuberant, somber, or anxious to please adults, depending on the test in which they scored highest? The researchers report observing such conduct as well as variations of interests in special sessions despite a fairly well structured stimulus pattern at the start of the lesson; and they indicate that with the better tests even sharper distinctions might be made with greater freedom in selecting the children.

The contribution of this research to the psychological theory of mental growth has already been cited. Its contribution to education theory may

be just as important, or even more so, depending on what further research finds. If acceleration of schooling is important to the general well-being of the gifted child, if it is important that he begin making his contribution to society at an early age—possibly before 35—then early and broad band identification is vital. Gifted children must be identified as early as possible if any significant educational action is to be taken for them, such as enrichment, acceleration, or homogenous grouping.

#### ARE YOU INTERESTED IN FURTHER DETAILS?

Final reports of all completed research projects are on file in the Office of Education. Interested persons may obtain summaries of these reports free of charge by writing to the Cooperative Research Branch of the Office of Education, Washington 25, D.C.

This study also opens the door to research on such interesting educational questions as this one: Can a particular type of education aimed at developing certain aspects of a child's personality in his early years, or even in his adolescence and beyond, improve his ability to learn certain types of materials? Now that investigation is finding that standard intelligence tests are gross indicators, a relook at this question, through instruments of differentiating diagnostic value, is perhaps in order. The reverse question could well be asked: Does the "type" of ability the child portrays affect the manner in which he learns and the type of materials in which he expresses the most interest? If the answer is yes, curriculums must be changed, and we may need a new series of grouping experiments based more on the types of abilities children display than on the level of a single dimension. (The school administrator may have to resort to high-speed computers for class programing should a combination of level and type of intelligence be prescribed!)

*The identification of gifted elemen-*

*tary school children with exceptional talent:* Drs. Davis and Lesser are now conducting another research project, in which they hope to measure the science aptitude of the top 2 percent of an age group. The test they are constructing will—after they have secured preliminary evidence of its validity—be individually administered to young gifted children.

*A survey and follow-up study of educational plans and decisions in relation to aptitude patterns:* J. C. Flanagan, University of Pittsburgh, in a 5-year project supported by funds from not only the Office of Education but also other Federal agencies will compare the actual choices young people make after high school graduation with their earlier plans (he will seek support for followup studies that would take 20 years to complete). He will also make an inventory of the students' aptitudes and compare them with their educational plans. He will survey about 5 percent of the United States school population in grades 9 through 12: about 500,000 students in 1,300 schools.

The investigator also is using the same procedures with a sample of 15-year-olds not enrolled in secondary school programs—mentally retarded students below the ninth grade or in special classes, institutionalized or homebound students, dropouts, and graduates. When these individuals reach their 19th year, their early plans will be compared with their later choices.

Although not specifically a study of gifted children, this project—the first scientifically planned national inventory of human talent—may become a significant contribution to the study of gifted children. It will provide a basis for much important research. It will make possible a more complete description of gifted children. Some of its findings will corroborate information gained in other studies; some will point to entirely new relationships. It will make available for further studies many types of information, both on the national sample and on several subgroups. Such

studies could include determination of averages, dispersions, correlations, and multivariate relationships in many areas.

This project could lead, for example, to studies on personal characteristics, such as parental education and occupations, penmanship, extracurricular activities, educational and vocational plans and attitudes, social development, and economic aspirations.

Or it could lead to studies of school policies and practices. For example, schools could be classified by average class size, library facilities, or the achievement of gifted students. It will also yield information on per-pupil expenditures, preparation of teachers, course offerings, socioeconomic status of the school district, and school size. Through the techniques of multivariate analysis and modern computer analysis, comparisons of variables, with important background variables held constant, are possible.

A third possibility is comparative studies that would group the schools on the basis of certain criteria (for example, enrichment, acceleration, or homogenous grouping) and then test hypothesized differences, or merely report descriptive differences of gifted children in achievement levels, levels of aspiration, social development, and attitudes toward school.

The list of possibilities is long. Among the others that come to mind are studies that would build on the information from this project to investigate more intensively the gifted child, equating studies that would use the *Talent Battery* and other tests, and studies that would follow the subjects into college.

Followup studies are assumed, of course, for there will be an excellent opportunity for longitudinal study of these students. Thus, many hypotheses and predictions based on the initial testing—as well as the results of various educational practices—can be checked against the future behavior of the same persons. There can be follow-back studies, too, to determine what has made the gifted children what they are.

## **Classroom organization and special procedures**

Five projects have been launched to investigate special abilities, classroom organization, and special procedures. One has been completed.

*The effectiveness of a modified counseling procedure in promoting learning among bright underachieving adolescents:* Sister Mary Viterbo McCarthy of Regis College studied 24 boys who showed a marked discrepancy between ability and achievement at the end of the first quarter of the ninth grade; their IQ's were 125 or above, they had no recognizable emotional difficulties, but their school averages were 75 percent or lower. She divided them into two control groups and two experimental groups. With the experimental groups she followed Rogerian counseling techniques and used 12 disguised case studies, representing the outstanding traits of the members of the experimental groups, as pivotal points of discussion. She herself, as counselor, maintained a nondirective role.

Despite the discussions and counseling, the control and experimental groups did not differ significantly at the end of the year in the final quarter grades or in attitudes toward school. Time, however, may have been a factor in the findings: only 2 months had been given over to counseling sessions (six in all) and the time for improving grades was short.

*An evaluation of ability grouping:* W. R. Borg of Utah State University is conducting a 4-year study of the educational activities of three groups of pupils—superior, average, and below average—in the public schools. He is looking for the effect that ability grouping, as compared with random grouping, has on such differences among schools as academic achievement, attitudes and opinions of pupils, study methods, behavior problems, amount of truancy, number of social isolates, and number of underachievers. He will analyze both experimental and control cases at the

fourth-, sixth-, seventh-, eighth-, and ninth-grade levels and at the secondary level.

*Effects of special training on the achievement and adjustment of gifted students:* T. A. Lamke and N. D. Hampton, Iowa State Teachers College, through the Iowa State Department of Public Instruction, are conducting research to develop and evaluate an administratively practical special education program for intellectually gifted elementary pupils (those with scores of 120 or above on a revised edition of the Henmon-Nelson Tests of Mental Ability) in a sparsely populated area. To achieve their end they are organizing and will evaluate an 8-week summer program for gifted children from areas surrounding the college; they are constructing curriculum materials for the program and devising methods of educating the parents of the children. Control and experimental groups will be used.

EDITOR'S NOTE.—After the project began, Dr. Lamke died.

## **Achievement and motivation**

There are 11 projects related to achievement and motivation. Four have been completed.

*Effects of children's social power and intelligence on their interpersonal relations:* A. Zander and E. V. Egmond, University of Michigan, used as subjects 418 boys and girls (from 16 second-grade and 16 fifth-grade classrooms) with high and low social power. They classified high and low intelligence groups on the basis of the top 33 percent and bottom 33 percent of the group IQ test (Kuhlman-Anderson). They defined social power as the ability to influence others, and rated the children on it from the opinions of their peers and teachers, and from their behavior in small groups. Children were said to have high social power if they rated in the upper half of their class group.

The investigators found that (1) intelligence by itself is not an important determinant of social relations; (2) "high intelligence" children as a

group behave about the same whether they possess high or low social power, but a boy of high intelligence and social power behaves in a manner which may create strong stress in his social relations; (3) "low intelligence" children behave differently according to the social power they possess; boys of low intelligence and high power, for instance, show social vigor and an understanding of others, and children with both low power and intelligence tend to be withdrawn and passive; (4) social power appears to be based on attractiveness and expertness more than on ability to threaten others; and (5) a boy's social relations are more likely to be determined by social power than a girl's.

*Attitudes of high school students as related to success in school:* T. B. Edwards, University of California (Berkeley), studied 3,750 high school students from 13 high schools in the San Francisco Bay area. He was concerned with the relation of certain mental constructs to academic achievement: (1) Deliberation prior to decision-making with respect to the social environment, (2) deliberation prior to decision-making with respect to nonsocial environment, (3) the immediate relationships to the social environment characterized by valuation of esteem and sanction of others, and (4) the affective immediate relationships with the natural and physical environment. The names assigned to these four are, respectively, prudent, theoretic, immediate, and aesthetic.

Some of the results the investigator reports are these: (1) Girls receive better grades than boys; (2) girls are more likely than boys to be prudent; (3) strongly prudent students receive more A or B grades than strongly theoretic students; (4) prudent interests are more advantageous than theoretic interests to both boys and girls in achieving high grades in social studies and English, and those who possess them aspire to social service occupations; and (5) theoretic interests are more advantageous to both boys and girls in achieving high grades in mathematics, general sci-

ence, and biology, and those who possess them aspire to occupations in the sciences and mathematics.

*Differences between good and poor problem-solvers:* M. W. Tate, B. Stanier, and B. Harootunian of the University of Pennsylvania selected from 636 pupils in two suburban junior high schools a group of good problem-solvers and a group of poor ones, 117 in each group. Basis for selection was the pupils' average scores in the verbal and abstract tests of the *Differential Aptitude Tests*, *Davis-Eells Games*, and *Thought Problems* (the investigators' test). Those who had deviated positively or negatively from the regressive line were judged to be those with the greatest or least problem-solving ability. Tests of problem recognition, word association, memory, ideational fluency, closure, and judgment and an inventory of preferences for thinking activities were used to evaluate the differences between children in each group.

The results indicate that (1) good problem-solvers do significantly better than poor ones in most tests where quality of response, accuracy, or judgment are required; (2) the more complex the task or the more restricted the requirement, the greater is the superiority of the good problem-solver over the poor; (3) boys and girls differ significantly on several of the tests but there was little evidence that either sex is better in general reasoning or problem-solving; (4) good problem-solvers are less likely to generalize loosely; and (5) as measured, flexibility-rigidity variables do not seem to differentiate between good and poor problem-solvers.

Investigators conclude that, if intelligence is comparable to a cluster of high-grade skills in problem solving, it can be deliberately cultivated in the classroom.

*The perception of symbols in music reading by normal children and by children gifted musically:* R. G. Petzold, University of Wisconsin, in a 6-month project, studied 227 fourth-,

fifth-, and sixth-grade children from the Madison, Wis., public elementary schools. The Kwalwasser Test (Form B) and the ratings of teachers were used to identify the average and gifted children. The investigator reports that (1) there were no significant differences between boys and girls in ability to read music, (2) the scores of average and gifted children with at least 12 months of instrumental training were not significantly higher than scores obtained by children without such training, (3) the basis used for identifying gifted and average subjects had a low degree of reliability, and (4) sixth-grade children do not perform significantly better than fourth-grade children, but they learn songs faster.

*The educational and motivation patterns of superior students who do and do not achieve in high school:* P. H. Bowman and J. V. Pierce, University of Chicago, are using as subjects 230 students in the upper 30 percent of 10th- and 12th-grade classes in the Quincy, Ill., public schools, selected on the basis of IQ scores. Their major objectives are to distinguish between achievers and nonachievers in their motivation toward achievement and in their self-concept, developmental history, home background, social adjustment, peer relations, and parents' social status and to distinguish between the patterns of educational motivation of boys and girls.

*The gifted adolescent in the classroom:* J. W. Getzels and P. W. Jackson, University of Chicago, have as their sample two groups of about 350 7th-to-10th-graders selected from a university laboratory school and from the public schools. Their major objectives are (1) to develop a plan for identifying subgroups within a gifted population such as the "intellectually superior," the "specially talented," and the "socially gifted," and (2) to describe the personal, social, and intellectual functioning of these subgroups with their age peers and with adults who are important in the school environment—teachers

and parents. The researchers are also concerned about the relation of social forces to the children's career aspirations.

The project is also focusing on the distinction between creative adolescents and those more conventionally gifted. Two groups have been selected from the laboratory school and are being carefully studied. Their self-images are being assessed and related to various qualities, and are being considered along with the preference ratings of their peers, parents, and teachers.

The investigators have found that parents and teachers vary in their attitudes toward academically gifted children, in their willingness to have them around. Teachers want them in their classrooms, for they conform to the current indices of educational success: They follow through on assignments, they get high grades, and they generally respond with reasonableness to classroom regulations and discipline. Parents, however, are not overly eager to have them in the family: they would prefer children less gifted academically and more blessed with social graces and winning ways. They do feel, however, that giftedness in the classroom, to a moderate extent at least, should mean better than average prospects for success in adult life.

Amazingly enough, the teachers in the study felt that the qualities designating giftedness in school are little related to the qualities designating giftedness in adult life. (Is it any wonder that morale is often low in teachers if this is the way they feel—that the qualities for which they reward students are really not too important in life?) As for the children themselves, they have aspirations generally unrelated to giftedness as their teachers and parents see it (primarily an academic giftedness): the children aspire to careers that make demands not so much on intelligence as on personal charm and persuasiveness.

It would be interesting to follow up this evidence with a longitudinal study for determining whether the blow here dealt to the prestige of the current indices of educational success

is indeed justified, whether the child who is classified by these indices as gifted will actually be so considered in his adult years.

In its probing into the complexities of giftedness, this investigation is adding another dimension—*creativity*—to the growing number of cognitive domains being found not highly related to the single IQ score. It is affirming the importance of broadening the concept of giftedness to take in both the adolescent equipped for success in the academic world and the adolescent endowed with that elusive quality called creativity, so that society will have the benefit of the best possible contributions of both.

### SOME REFLECTIONS

As the findings of research accumulate and the interrelations among them appear, we find signs that much of what we have long accepted as useful in education may have outlived its day. It is not too early for educators—and laymen, too—to note these signs and to examine closely the practices and ideas they question. History has given us lessons enough to teach us that a social institution, long after it has ceased to function effectively, may continue to exist for a while, but not beyond the day when its functions become so unrelated to society's welfare that everyone recognizes the fact. On that day begin the withdrawal of social support and the collapse of the institution.

The school has been functioning with all sorts of curriculum requirements and offerings both unpleasant to the student and uneconomic to society, but it has been able to do so only because the end product—the high school or college diploma, for instance—has been a status symbol or because the requirements and offerings are luxuries paid for by low faculty salaries and high student fees.

Luxuries in education probably will be with us until the costs become so high we can no longer afford them. Indeed, perhaps a semiluxurious education, one for which it is difficult

to develop immediate economic arguments, is the best kind. However, when the type of education proffered starts to lose status in society, particularly if part of the reason for the loss is society's recognition of the dwindling economic value of that type of education, the educational system must either change or face thorough overhauling. Schools cannot use a single criterion system for the awarding of favors, indicative of prestige, for academic and intellectual accomplishments. Neither can they use a single dimension predictor of success, even in the cognitive realm.

The typical intelligence test, which yields a single score, was originally developed to be such a predictor. But as time has passed, this test has been "refined": items that correlated only moderately with the majority of items have been thrown out and in that process the test has been made even narrower. Now that testing has become more prominent than ever, the predictor tends to some extent to become the criterion. School administrators and teachers are asking why Johnny isn't achieving in school as well as he *should*, and they are defining the *should* from his scores on the "refined"—that is, a narrow—intelligence test. This score is bound to influence the teachers' grades and, in turn, the curriculum.

As empirical checks on educational practices, intelligence tests are not necessarily bad; in fact they are probably worth while, provided the bases of evaluation and of prediction are broad. More use should be made of intelligence tests that measure number ability, space conceptualization, and creativity; these traits should be factors in the trial predictor equations of achievement.

All that makes a person valuable to society and that can be developed through a broad educative process must be considered in evaluating an educational system. If it is not included, many people will be denied the satisfaction of developing their talents to the fullest, and society will never know the benefits of their ability.



## Teaching Social Studies

### Opportunities in the subject, the growing child, and the changing scene

This article was originally a talk addressed to teachers, principals, and supervisors in Washington, D.C., a city with unusual advantages for teaching the social studies. But teachers everywhere can find in Dr. Hill's suggestions a universality that makes them adaptable to any kind of community.

ONCE UPON A TIME, in Denver, Colo., there was a class of fifth-graders who every day heard the whistles and clangings and puffings of a locomotive in the distance. They grew curious about it, for it seldom went beyond hearing; they could imagine its prowling about the neighborhood all day in busy circles.

They brought their curiosity with them into the classroom, and the teacher, quickly aware of it, put it to work. Together she and the children set out to solve the mystery of the locomotive that never went away.

By well-placed inquiries, they found it did nothing but carry loads of coal to storage bins along a little spur railroad only a few blocks away. Still curious, though, they wrote a letter to the railroad to ask why the locomotive rang its bell and blew its whistle so often. The end of it all—or rather, the beginning of it all—was that the railroad company invited the class to come and see for itself. And so they went, down to the tracks, where the engineer stopped the train at the appointed time. The engineer permitted the children to inspect the train and to see and hear every safety device in sight.

The teacher who developed this project in transportation and safety with her pupils was putting life into the way she taught the social studies.

She was doing it by observing two basic principles:

1. She was taking the "experience" approach; that is, she was starting with the facts and truths and questions within the child's experience. She was remembering that everything the child learns is more meaningful if it comes out of things he has seen or felt or wondered about.

2. She was taking advantage of the child's fresh, creative ideas; that is, she was involving him in the planning, developmental, and evaluational stages of learning.

#### The child's experience

Taking the experience approach is easy when it comes to studying one's own community or nearby places. After all, as Dewey and Kilpatrick have long taught us, we learn what we live. And the social studies are full of subjects we can enliven by drawing on the child's own experience.

Take conservation. Here in the District of Columbia and its environs we have a watershed. We have a river system, and we have a water-pollution problem. Just to mention these three to the social studies teacher is to suggest the possibilities they present for pupil projects.

Conservation, fortunately, is a matter the children themselves can do something about.

They can set up bird-feeding stations and keep them well-stocked in snowy weather. They can build rock gardens on a slope of the schoolyard, they can plant shrubs and vines. Even if the school has no yard, they can still plant—along the fences and walls and in odd corners here and there. And they can build check dams to keep the

schoolyard from washing away—an activity far more productive, both for the child and for the total conservation effort, than sitting inside at a desk and making posters, even prize-winning posters, to urge erosion control.

What a child learns in school about conservation, he is quickly tempted to put into practice at home. He can have a garden there—and some kind of garden at home is possible, I believe, even under the tightest limits of city life—and he can give comfort and sojace to birds and other wild life.

School activities can spread until they involve the whole community. Many a nature trail begun by and for the school has been lengthened and widened to become a recreative joy for everyone in town. Many a community's antilitterbug campaign either began in the school or has the school's enthusiastic cooperation. Our own Keep-Washington-Beautiful programs give the schools a many-channeled outlet for pupil activities in conservation—an opportunity the schools have been quick to use.

Aviation is almost as full of opportunities for drawing on a child's personal experiences as conservation is. Last spring school people from 40 different countries attended the First World Congress of Flight, out in the Nevada desert; and if I am to judge by their eager attendance at the sessions and their sharp interest in the exhibits and demonstrations, the schools know very well indeed what is going on and what their responsibilities are. Now that space has been added to air, the task for us teachers is more complex than ever; but we can take satisfaction in the thought that



the situation comes to us with motivation already built in: boys and girls are irresistibly drawn by the mysterious unknown. Stimulation comes easily. A single trip to an airport and an inspection of planes, and your class will be off toward new horizons! Star gazing is no dreamy business these days; it is a practical pre-occupation.

But back here on earth are other subjects, just as practical. There's clothing, for example—what it's made of, how it's made, how it should be cared for. One school I know, out on Long Island, gives the children firsthand experience in the subject by keeping a toggery shop, to which the children bring clothing they have outgrown, for either sale or exchange. A primary class in a Colorado school reserves a quiet corner of its room for a clothes-care center and keeps it equipped with such necessities as shoe polish, a sewing kit, buttons, and clothes brushes. Many schools use actual visits to clothing and fabric stores to give the children consumer education; the children plan, before they go, to make some actual purchase, and in making it they learn about many things—about labels, quality, prices, measurements, and sizes.

### **A call for ingenuity**

Taking the experience approach, however, may not be quite so easy when we turn our eyes beyond our immediate environment. Just how do we go about getting experiences we can draw on to help explain other countries to ourselves? Some hopeful people foresee the day when we can pile our children into a jet plane for an afternoon's class in, say, Africa; but that day is not yet, and while we wait for it we must use our ingenuity.

You teachers here in Washington are fortunate: you can appeal to the chancellery or the embassy of the country you plan to study, and it will respond with maps, bulletins, pictures, and any information you want. If the country is in Latin America,

you have also the Pan American Union to turn to.

What's more, foreign visitors on government missions usually make Washington their first stop, and the first American school they see is often a Washington school. These people are a resource of the first order, and many of them will be glad to come and talk to your class and answer questions.

What's more, in your schools you have the children of many, many people who, though they live in Washington, are citizens of foreign countries. What these children can tell their classmates about their countries "back home" will bring these countries almost within the realm of personal experience for all the children. You are also likely to have in your class an exceptionally large number of American children who have lived abroad; you may be surprised to find how many.

The zoo, too, is a wonderful place for getting some firsthand experience about other climes. There is a polar bear from the frigid zone, a tiger from the tropics. Even Smokey Bear is in our zoo—but he's our own bear, useful chiefly for giving us ideas about teaching conservation. More helpful on the exotic side is the baby elephant that is to follow Firoza Irani from India. Last fall this child ambassador brought 3,000 birthday gifts for American children from the children of her own country. The gifts have long since been distributed in half a dozen cities, but the elephant will arrive in the spring and after a tour will remain here in the National Zoo as a symbol of friendship between the children of India and the children of our country.

There is one big trip you *can* take, if your class is old enough and ready for it: that's a trip to the United Nations headquarters in New York. It will be worth all the trouble it makes, for it will give your children a deep impression of the world's will for peace and justice and its struggle to make that will prevail. In their minds the children will bring back a storehouse of associations that you

and the teachers who follow you can draw on again and again. Even before you go, in the flush of anticipation, the trip can motivate learning, and the whole class can join in gathering information, from television, radio, magazines, and newspapers.

Washington, of course, is a city that virtually begs for field trips. The Capitol, the Supreme Court, the White House—these places come first to mind, but there are hundreds of others with national significance. If you want help in making choices—and who does not?—I commend to you a guidebook recently published by the Office of Education, *Know Your Capital City* (OE Publication No. 10002, available from the Superintendent of Documents for only a quarter). Washington is a whole civics text in itself; anyone who opens its pages will see before his very eyes the Federal Government at work.

### **Pupil-teacher planning**

As you tackle this job of taking the experience approach, you will find no stronger ally than the pupils themselves. Children are so creative that it would be a pity, when you plan a project or unit of work, not to have the advantage of their ideas; besides, the planning itself is a kind of experience approach for them that will help to arouse their interest in the project to follow.

Now, there are many ways of doing pupil-teacher planning and getting pupil participation, but let me give you just one example.

Let us suppose you have just introduced a new unit for study. Then, you will invite your pupils to get into it with you by asking such questions as:

1) "What can we do to help ourselves learn more about this subject?" As the suggestions come in, pupils will make a list; and then, together, you and the pupils will make selections.

2) "What do we want to find out?" This is the question that sets the class to thinking about the purposes of their study and eventually draws from them a statement of the problems to

be solved, the content to be considered.

3) "Where can we find the information?" You won't just offer your class a pile of books, no matter how good a collection you have at hand. Instead, you will interest the children in the search and they will augment the classroom collection with their own books and with books they take the pains to borrow; they will compile bibliographies for their classmates to use. They will name people who they think can give them information; they will find out what museums to visit, what maps and globes and pictures to collect, and what materials to send for.

4) "How shall we organize for our project?" You and the children, planning together, will decide whether committees will study certain problems or subtopics and report to the class, whether the class will work as a unit until each child is able to choose for further elaboration the problem or topic of greatest interest to himself, or whether some other way of working is best. After all, different projects call for different approaches, and a session or two of planning with the pupils will help decide what is best for a particular topic: Whether to have groupings based on interest, or on ability, or on a sociogram; whether to have no groups at all; or whether to have a number of individual projects.

Whatever the approach, pupil participation should be continued throughout the various stages of a unit of study, all the way through the evaluation process.

### Special opportunities

As you and your pupils work more closely together, you will find your opportunities increasing for helping each child to develop socially, to develop skills that will make life pleasant and successful for him both now and in the future. Most children need help in learning how to participate; they need to learn how to work with others, how to assume responsibility, how to lead and how to follow and when to do each.

Social studies materials are ideally suited for developing certain study skills, too. They call for a certain kind of reading, and you can use them to develop the skills so valuable to readers of all ages. It is helpful to point out the author's signals to central ideas and important details—the center and side headings, the italics and boldface type, the word or phrase all in capital letters, the topic and the summary sentence. Children should be shown how to read graphs and charts, how to see the relation between the vertical and the horizontal scale. They should be helped to get geographic facts from pictures. They should be introduced to the index, the table of contents, the glossary; and the glossary should be supplemented with the dictionary, for the social studies offer particularly rosy prospects for vocabulary building.

By its very nature, the social studies program gives you some of the best opportunities to do high-quality teaching in citizenship. You can begin with the child's attitudes and behavior as a citizen of the school, and then move out into the community, the District, and the Nation. And now, when schools are introducing children to international relations earlier than they used to, you will of course carry education for citizenship into the realm of international affairs and show the children how they themselves can become ambassadors of good will to people of other nations.

In this matter of citizenship education, as you look about you for ways to bring the ideals and processes of representative government within the experience of your classes, do not neglect an opportunity that can exist right inside the school—the student council. Use it to show your children what it means to be an American, that citizenship not only grants privilege but imposes responsibility.

Nowadays we are putting more emphasis, too, on the geographic side of social studies. We do so because the future demands it: with every passing day this Nation's welfare is more closely bound with the welfare of all other nations.

So we study different peoples and their lands, and learn to see the values inherent in the similarities and the differences among them. We learn how physical environment affects a people, its government, its economy, its social customs, and its art; and in so doing we better understand and appreciate cultures other than our own—and our own culture as well.

From geography, therefore, we move naturally to the arts; and from the arts we move easily to understanding and appreciation. The geography and history of Brazil, for example, are inextricably intertwined with the music of Villa-Lobos and the paintings of Candido Portinari; and our own appreciation of the Brazilian culture is highly dependent on our knowledge of both its geography and its art.

This use of the arts in the social studies, so much on the increase in the teaching of international understanding, should of course be carried into our study of the United States. The works of American artists are a treasure for the teacher; they can be used to fill both history and geography with vivid experiences for the child.

No part of the curriculum, it seems to me, responds more quickly than the social studies to the demands of the times. We are at a turning point in our urban development: things are changing—street car tracks are being torn up, houses are being torn down. We are becoming sharply aware of outer space as a part of our environment and must teach our children what the new explorations may mean to them and their immediate communities—from the standpoint of sociology, economics, and international relations. Stresses between nations point up the desperate need for understanding between the Americas, between the East and the West. The natural vehicle for bringing all this to the child is the social studies program, which, by its very sensitivity to the times, is easy for the teacher to vitalize, if she but puts her mind to it and sets her imagination to work.

## LOCAL SCHOOLS BENEFIT FROM INTERNATIONAL EDUCATION PROGRAMS

By ANNE MILDRED HOYLE  
*Supervisor of Elementary Schools  
Prince Georges County, Md.*

*WHAT kinds of homes do you have? Are your schools like ours? Do the boys and girls in your country like to play games?"*

These questions and many more like them are the questions pupils usually ask the foreign educators who visit the public schools of Prince Georges County, Md., every year to see American education in action. Because of its proximity to Washington, D.C., the Prince Georges County school system has an opportunity each year to entertain many educators from countries in various parts of the world.

The visits not only provide an opportunity for foreign educators to study the schools in Prince Georges County, but give the schools—teachers, pupils, and parents—many challenging, interesting, and enriching experiences.

After the Federal agency sponsoring a visit makes arrangements with the county superintendent of schools, a staff member of the county board of education accompanies the guests to the schools to explain and interpret the educational program.

The first reaction of most visitors is amazement at the type and size of the school buildings; they are always interested in the variety of facilities and materials of instruction that the schools have and in all of the different phases of the county school program from primary grades through junior college. Many of them request copies of school bulletins, courses of study, and other materials that might aid them in developing or improving their own educational programs.

Many of the 1,300 foreign educators from 75 countries who come to the United States every year under the technical assistance and teacher

training programs of the Department of State see their first American schools in Prince Georges County. The itinerary the Office of Education, which cooperates with the State Department in administering the programs, plans for them often begins with a visit to an elementary or secondary school in the county which lies just east of the Capital.

In addition to visits by individuals and by small groups of these educators through the school year, the county for several years has had the privilege of entertaining a large group of these international teachers one half-day in September, as part of an orientation program the Office of Education provides for them. Some years this half-day program has fallen when the schools have been in session only 3 or 4 days. Though it is sometimes difficult to prepare for visitors so soon after the opening of schools, our administrators have always accepted the opportunity willingly and have made the visits a learning experience for the children and a project in which many people in the community take part. Because the visitors have a full schedule and travel time is limited, schools near the District of Columbia are usually hosts. The county board of education provides transportation.

Each year different schools are selected to receive the visitors so that more children, teachers, and parents may have the rewarding experience of meeting them. As county elementary supervisor, I work with the faculty on arrangements and plans for programs and activities that will give each visitor a chance to see work in every phase of the school program and at different grade levels. School children—members of patrols, serv-

ice clubs, and other school leaders—assume responsibilities for escorting and directing the groups of teachers to classrooms. The visitors seem always to be impressed with students' abilities to perform these duties.

After they have observed in a class for a while, the guests are introduced and given an opportunity to talk with the children. Often a class asks the visitors to write their names and messages in the class guest-book.

Interest among the students mounts as the guests respond to their questions: "What kind of art work do your boys and girls do? How long is your school day? Do your boys and girls go to school together? Do your school books have as many pictures as ours have?"

Replies by the teachers make a deep impression on the children. Four years after one of the visits, a boy in a sixth-grade class said, "When I was in the second grade, I remember asking a man who lived in a tropical country about his schools. He said that in his country they wouldn't have a school like this in 50 years. He said they hold their lessons out of doors. They have a school but it has no walls like ours."

And the children impress the teachers, too. A young teacher from Africa told one class after it had dramatized an ancient African folk tale, "I don't think we need to tell these children much about Africa. They already know a great deal about it."

Following the visitors' tour of the building, the local parent-teacher association entertains them at a tea. At this time the school faculty, the board of education, the central office staff, the school trustees, and guests from

the community have an opportunity to talk with the visitors. After the tea, there is a general discussion period when everyone present can exchange information and ideas.

The Office of Education invites representatives of the school system to meet with foreign educators in the Office the next day in a panel discussion on what makes a good school. A girl, a boy, a teacher, a principal, a supervisor, and a parent take part in the discussion to help clarify the visitors' understanding of a public school system in the United States.

In preparation for the panel discussion at the Office of Education, the school brings all pupils and teachers together to decide what makes a good school. Preparing for the discussion has a multifold purpose: It helps focus the entire school's attention on this activity, it prepares the participants who are to present material, and it develops pride in and appreciation of the school, its facilities, and program.

There have been many beneficial results of the program. As one principal said, "Entertaining international visitors gave our school a fine start for the year. It not only provided an interesting theme for our entire school to work on, but it required us all to work and plan together. It was an invaluable experience."

Each class has real problems on which to work in preparing for the visitors. Pupils learn by doing how to make their classrooms attractive, how to present evidences of the type of school work they are doing, and how to welcome the guests and how to behave during the visits. They decide on what they would like to know about the countries from which the visitors come. As a result of the visits, their interest in and understanding of other parts of the world are broadened. The visits have proved an incentive to the study of maps and globes, and they have sparked a continuing interest in current events. Frequently children comment in class on news they have read in a paper or

heard on radio or TV about a country from which a visitor came.

A noticeable influence of the program is an increased understanding and appreciation of other peoples. It is easier after a visit for the children to see that people all over the world—of many nationalities and races with differing customs—have many things in common.

The visits have stimulated an interest in learning foreign languages: "¿Hablan los niños español en su país?" "Sí, algunos niños aprenden a hablar inglés en mi país." "Comment aimez notre école?" "J'aime beaucoup votre école." "Gli piace la sua visita nel nostro paese?" "Mi piace molto il suo paese." As conversation between children and guests develops, the children who can speak to the visitors in their native languages go up in the esteem of their classmates.

Many friendships have been made. For example, some of the school people have taken pictures of the visitors and sent copies to them. Some children still get Christmas cards and notes from visitors from Pakistan, Iraq, and Mexico, and others continue to exchange coins.

Not only representatives of the parent-teacher association but members of the community—local government officials, businessmen, representatives of civic organizations—take part in the project. The children talk so much at home about the visits that their parents become interested. Many of them are eager to visit the school while the visitors are there, but due to limited facilities, it has been impossible to invite all of them.

At some schools, parents have reported at P.T.A. meetings on what the visits meant to their children. "Although I did not get to see the visitors," said one parent, "I feel almost as if they had been guests in our own home. Our daughter has talked of nothing else since the first day of school. We have discussed how people live, work, and play in other countries. We have used maps and atlases to locate the countries from

which the visitors came. We have listened to our daughter's comments about this first contact with a group of people from overseas. She was impressed by their dress, with many dressed like us but others in their native dress. The visit has given all the children of our school first-hand experience with what, up to now, have been story book characters. It has brought our foreign neighbors into a world of reality and has made our children realize that people in other lands work for their children the same as we parents and teachers do. This has been a wonderful experience for our entire family."

Another parent, one who had participated in the panel discussion at the Office of Education, said, "The sincere and genuine interest that the visiting teachers and administrators showed in our country, our schools, in the students, the teachers and parents was most apparent to me. They were eager to ask questions and were equally anxious to tell us of life in their countries, particularly of their schools. As a parent it is most gratifying to me to see how such a program stimulates interest in peoples of other lands among even our very young elementary students. We have much to share with them and may we have the wisdom to take advantage of the good that this program can bring to us."

So that everyone could enjoy at least vicariously the visit to the school, slides have been shown at P.T.A. meetings.

The school people of Prince Georges County realize that this one brief look at a school in action is not enough to enable the visitors to understand the freedom and democratic procedures under which children in the United States live and work in their classrooms and school. They also realize that the schools probably get more from the visitors than the visitors get from visiting the schools. For this reason, the schools in Prince Georges County appreciate the opportunity of entertaining the visitors and of helping in a small way to improve education and understanding of peoples throughout the world.





## THE NATIONAL DEFENSE EDUCATION ACT *After 18 Months*

By C. H. MOORE

Assistant to the Commissioner of Education for the National Defense Education Act

**T**HE unfolding story of the effect of the National Defense Education Act at the end of 18 months of operation is most encouraging, even heart warming. Every mail brings additional assurance that the act is being widely accepted throughout the Nation; that as Federal, State, and local officials work together toward a common goal, they are coming to recognize more and more an identity of interest and to acquire mutual understanding and trust. Daily the mail brings assurance, too, that many people, formerly fearful of Federal aid, are beginning to realize that the Federal Government does have an urgent interest in strengthening education and that through its investment in NDEA and other Federal aid programs it is discharging its role properly and efficiently without disturbing the vitally important pattern of State and local control.

Early accounts such as this of the progress being achieved under the act tend to deal primarily with numbers of dollars, teachers, students, projects, and the like. More important but vastly more difficult to report is the intangible good the act is doing or the influence it is having on people. Back of all the figures on dollars spent, loans made, projects approved, there are people whose lives are affected by the act—parents, children, college boys and girls, teachers, and others.

Reports are coming in about boys and girls, ambitious but needy A students, who are now realizing their ambitions to go to college; of parents who are elated because their children

are having a better chance than they had had or because their 9- and 10-year-old children are learning a foreign language; of foreign language teachers and guidance supervisors who in summer institutes have found new strength of purpose and new enthusiasm as well as new information and new methods. In the 54 States and Territories and the nearly 1,400 institutions of higher education participating in the act there is evidence of similar results.

By June 30, nearly \$400 million will have been spent in carrying out the provisions of NDEA—about \$250 million in Federal funds and \$143 million in funds from States, local districts, and institutions of higher education. The evidence indicates that the funds are being spent wisely on educational programs designed to prepare American boys and girls to meet critical national needs.

We base our title-by-title review of NDEA in part on reports coming in from the 54 States and Territories participating in one or more titles of the act. Those reports show not only the use of Federal funds made available and the action taken but also the eagerness of administrators and teachers to miss no opportunity to improve their schools, to carry out the objectives of the act as set by the Congress.

### **Title II: Student loan program**

Since the passage of NDEA \$62 million in Federal funds have been made available to help needy but able

students continue their education in colleges and universities. Institutions participating in the loan program have contributed \$7 million in matching funds—each institution must put up \$1 of its own funds for every \$9 of Federal funds it receives. By June 1, 1960, approximately 90,000 persons will have been aided.

Among the accomplishments made under title II, the following are significant:

► In 1959 loans were made to 11,333 high school students of ability who would not have been able to go to college without them.

► Loans to freshmen far outnumber those to other classes as the distribution below indicates.

|                         | Percent |
|-------------------------|---------|
| Freshmen .....          | 30      |
| Sophomores .....        | 19      |
| Juniors .....           | 20      |
| Seniors .....           | 21      |
| Graduate students ..... | 10      |

► A study of 36,497 of the students who received loans or loan commitments in 1959 found that 13,689, or about 37 percent, planned to teach in public elementary or secondary schools and that 3,056, or about 8 percent, were students with background indicating superior capacity or preparation in science, mathematics, engineering, or a modern foreign language.

► In 1956 colleges and universities had \$26 million available for student loans and had made loans of only \$13 million, averaging \$162 a loan. Now reports indicate: they are modifying

the terms of their loans to meet those of NDEA; the number of State loan programs is increasing; and they are lending to larger numbers of students. Under NDEA the average loan is \$500.

► Borrowing to help pay for education is being widely accepted by students. For example, at Temple University a sizable number of students with superior records who had previously dropped out of college for financial reasons have returned as loan recipients. Between 10 and 15 percent of Temple's student borrowers have changed from a part-time to a full-time status.

The loan program is succeeding beyond the most optimistic expectations of Federal and institutional officials, but unfortunately the demand for funds is exceeding the supply. Many institutions have underestimated their needs and have had to deny or reduce loans during the year or to make no commitments to high school students planning to enter college next fall. Under the allotment provision of title II, only 18 States received 100 percent of their approved requests; some States for various reasons did not file requests during the year. As this is written Secretary Flemming is asking the Congress for a supplemental appropriation of \$9.7 million which will provide for the various needs.

### **Title III: Science, mathematics, and foreign language**

To strengthen instruction in science, mathematics, and modern foreign languages in elementary and secondary schools, the Government has obligated \$90.5 million for acquisition of equipment and minor remodeling of space to be occupied by the equipment acquired, for State supervision and administration, and for loans to nonprofit schools for equipment and minor remodeling.

In 1959 approximately \$32.6 million was obligated to the States for equipment and remodeling. Despite the problems of administering a program of such magnitude, in fiscal year 1959, the States approved 10,570

projects for a total cost of \$25.9 million:

| <i>Subject</i>    | <i>Number of projects</i> | <i>Cost in millions</i> |
|-------------------|---------------------------|-------------------------|
| Science .....     | 6,286                     | \$20.0                  |
| Mathematics ..... | 2,601                     | 1.9                     |
| Languages .....   | 1,683                     | 3.9                     |

The number of secondary school projects was four times that of the elementary school.

The States estimate that they will use \$59 million in Federal funds in this year, and 20,000 additional projects will be financed. Local school systems of all sizes and well distributed throughout the country are filing projects for approval. For example, in West Virginia 52 out of 55 counties are participating in the program, and in Illinois 70 percent of the local school districts have filed applications for funds.

Recent surveys indicate the schools' need for equipment: for example, 25 school systems in Virginia are distressingly lacking in facilities for teaching science; Minneapolis has found that last year its need for science equipment totaled \$8.6 million, which was 80 percent of the allotment of Federal funds for the entire State in 1959. But with title III aid some schools are filling their needs, as the following accomplishments indicate.

► One school system has installed three language laboratories in its high schools and one demonstration laboratory in an elementary school; made available public instruction in Spanish, French, German, and Russian; and provided portable demonstration laboratories for seventh- and eighth-grade science instruction.

► Within 1 year a Southwestern State increased expenditures for science from \$1.24 per pupil to \$16.54 in 25 school systems.

► A small midwestern city has installed the first language laboratory in the State; as a result 70 of the 200 high school students and 90 third- and fourth-graders are studying Spanish; and 23 adults have begun studying

Spanish in evening classes once a week.

► In a Southern State local businessmen donated \$9,500 to the citizens of one county to match title III funds.

► In a Western State high school foreign language enrollments increased by 90 percent in 1 year; one rural community is offering chemistry I and algebra II for the first time in 10 years.

► In a Southwestern State 26 schools showed a 1,300-percent increase in expenditures for science equipment in 1 year.

To strengthen State department leadership and supervision of classroom instruction in mathematics, science, and foreign languages, the Government obligated \$1.1 million in 1959. So far in 1960, 48 States and Territories have estimated they will use \$2.05 million.

Although some State departments are having difficulties in obtaining State matching funds for supervision and administration, they are moving ahead. Before NDEA there were only 33 supervisors working in the combined areas of science, mathematics, and foreign languages; now there are 160 supervisors, distributed as indicated below.

|  |
|--|
| Science, 59.   |
| Mathematics, 39.                                     |
| Mathematics and science combined, 20.                |
| Modern foreign language, 41.                         |
| Elementary science and foreign language combined, 1. |

The supervisors are encouraged by the enthusiasm that new equipment has stimulated in science teachers, especially those in elementary grades; the increasing numbers of teachers attending inservice training institutes and summer courses; the development of new classes and increasing enrollment in the three subjects, especially by the college preparatory classes in mathematics and science. Reports from the States indicate that their encouragement is justified. For

example, in one Southern State, enrollment in French jumped from 5,642 to 12,999 in a year, and 225 of the 658 foreign language teachers enrolled in summer training.

State supervisors are working on the broader aspects of title III programs. For example, they are developing State standards for the acquisition of equipment and minor remodeling; assisting in determining teacher qualifications; conducting regional workshops for schools planning projects in science, math, and foreign languages; demonstrating equipment and effective teaching techniques; making studies of enrollment and equipment; undertaking research in curriculum and the use of television and other media of instruction; and, probably most important of all, developing curriculum guides.

Title III authorizes the Office of Education to make loans to non-profit elementary and secondary schools for equipment and minor remodeling and to finance them by reserving 12 percent of the Federal funds appropriated. Although fewer private schools than we anticipated have taken part in this phase of title III programs, those participating have benefited significantly. Since the beginning of NDEA, out of 141 applications requesting \$2,070,674 exactly 114 for a total of \$1,337,057 have been completed. Others are pending.

#### Title IV: Fellowship program

The graduate fellowship program is operating at its maximum authorization to accomplish the purposes of title IV: To strengthen and extend facilities for the graduate preparation of teachers and to encourage students to prepare for college teaching.

To date 2,500 fellowships have been awarded and 678 new or expanded programs have been approved in institutions scattered throughout the country. All but 150 fellowships have been awarded to students with not more than one semester of study in the field in which they intend to earn their doctoral degrees.

This year approved programs in

## Statistic of the Month

### Emergency Teacher Situation Still Serious

**T**HE number of emergency teachers—that is, teachers who cannot qualify for the lowest standard certificate for the work they are doing—has increased every year since 1954, from approximately 75,000 in the fall of 1954 to approximately 99,000 in the fall of 1959.

In elementary schools fewer emergency teachers were employed in the fall of 1959 than in 1957, but more than in 1958, and almost 9,000 more than in 1954. In secondary schools the number has increased every year except one since the fall of 1954, from 14,000 to 29,000 in the fall of 1959.

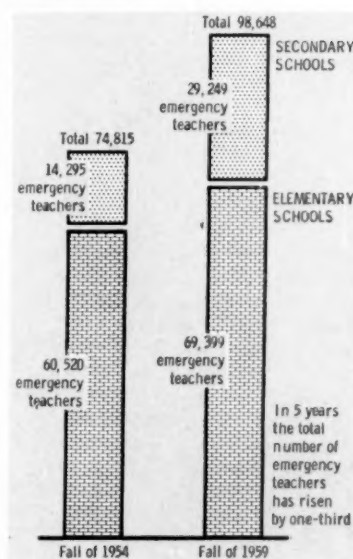
On the basis of 30 pupils to 1 elementary teacher and 25 pupils to 1 secondary teacher slightly more than 2.8 million pupils were taught by sub-

Emergency teachers in public elementary and secondary schools, fall 1954 to fall 1959

| Fall      | Number of emergency teachers <sup>1</sup> |                         |                        |
|-----------|---|-------------------------|------------------------|
|           | Total                                     | Elementary <sup>2</sup> | Secondary <sup>2</sup> |
| 1954..... | 74,815                                    | 60,520                  | 14,295                 |
| 1955..... | 77,554                                    | 59,453                  | 18,101                 |
| 1956..... | 89,388                                    | 66,205                  | 23,183                 |
| 1957..... | 91,538                                    | 69,935                  | 21,603                 |
| 1958..... | 92,637                                    | 68,142                  | 24,495                 |
| 1959..... | 98,648                                    | 69,399                  | 29,249                 |

<sup>1</sup>For 48 States and D.C. For 1959 the data for 50 States and D.C. are: total 98,858, elementary 69,510, and secondary 29,348.

<sup>2</sup>Data for elementary and secondary schools are classified by type of organization of the school, rather than by grade grouping.



standard teachers in 1959, an increase of 640,000 in the last 5 years.

The national average salary of instructional staff, including Alaska and Hawaii, is estimated by NEA at \$3,950 in 1954-55 and \$5,160 in 1959-60. In spite of the increase not enough qualified teachers can be persuaded to enter the teaching profession to make headway in decreasing the number of substandard teachers.

For further data, including State figures, see "Fall 1959 Statistics on Enrollment, Teachers, and School-housing," Office of Education Circular No. 604, Washington, U.S. Government Printing Office, 1959. 20 p. 25 cents. (OE-20007.)

—EMERY M. FOSTER, *Chief, Research Studies and Surveys Section.*

foreign languages have been limited to German, the Romance languages, Portuguese, and Russian, so as to avoid duplication of title VI programs. Thirty such programs with

147 fellowships have been approved; however, 16 programs with 83 fellowships have been approved for study of regions in which languages other than these are spoken. ➡

The 2,500 fellowships awarded in 1959 and 1960 are in 6 fields of study.

|                          | Number Percent |    |
|--------------------------|----------------|----|
| Social sciences.....     | 713            | 29 |
| Humanities .....         | 650            | 26 |
| Physical sciences.....   | 469            | 19 |
| Biological sciences..... | 308            | 12 |
| Engineering .....        | 205            | 8  |
| Education .....          | 155            | 6  |

The estimated cost of the 1959 program is \$5.3 million and \$12.8 million for the 1959 and 1960 fellows who will begin studying in 1961. Fellows receive stipends paid from Federal funds of \$2,000 for the first year; \$2,200 for the second, with allowances of \$100 for each dependent. Each fellowship is limited to 3 years. To cover the cost of his instruction, the Government pays a maximum of \$2,500 to an institution for each fellow it enrolls.

Administrators of title IV are successfully meeting the requirement that funds be used to promote wide distribution of graduate facilities: Programs have been approved in every State of the Union where the doctor's degree has been awarded, and a large number of fellowships are being awarded in States in which the fewest doctor's degrees have been earned.

#### Title V: Guidance and testing

Fifty-three States and Territories are participating in the guidance, counseling, and testing programs authorized under title V. Through these programs they identify, advise, and encourage pupils with outstanding aptitudes and ability to complete their high school courses and to prepare for and enter colleges and universities.

Despite the short time in which States could participate in 1959 after title V programs were initiated, the Government approved payments of \$6.2 million to 46 States and Territories. Although they were not required to match funds in 1959, as they have been in subsequent years, they added \$5.6 million of State or local funds to their programs. This

year 50 States and Territories estimate that the Government's contribution will be about \$13.7 million.

In 1959 a total of 1,915,357 tests were administered in public secondary schools and 202,139 in nonprofit private secondary schools. In States not permitted by State law to provide a testing program for pupils in nonprofit secondary schools NDEA authorizes the U.S. Commissioner of Education to contract with testing agencies to conduct tests.

State supervisors and consultants are not routinely administering a program: they are working hard to improve the guidance, counseling, and testing programs. They have organized workshops to improve counseling services, made followup studies of graduate students and dropouts, developed materials and techniques for interpreting and using test results, and developed handbooks for use in workshops and conferences with local counselors.

A few items chosen at random from State reports may show the influence of title V more clearly than a general summary of progress made:

▶ The number of guidance supervisors employed in State departments of education was increased from 99 to 144 within 1 year, and 90 percent of the States indicate they will employ additional supervisors.

▶ Every State department has employed at least one supervisor of guidance.

▶ One Western State, Oregon, has approved a new program for able and gifted children and appropriated \$250,000 annually for 3 years to be used in improving instruction and curriculums for this group. And another Western State, California, reports that out of 330 secondary school districts enrolling 933,586 pupils, 229 districts enrolling 787,075 pupils participated in title V activities.

Fifty short-term institutes were held last summer at colleges and universities located throughout the Nation, at an estimated cost of \$2.2 million. They gave intensive training to 2,210

local counselors (median age 37), nearly all of whom had had training and experience in counseling. If we assume that each counselor is now putting what he learned then into practice in his work with 300 students (the national standard is 300 pupils per counselor), at least 660,000 pupils are reaping the benefits of the institutes.

The experience gained in last summer's institutes will be of benefit to directors of succeeding ones. Observers who carefully evaluated each institute concluded: The counselors attending were highly motivated, worked hard and enthusiastically, exhibited a general sense of mission, reached a better understanding of the characteristics of able and gifted children, were stimulated to go on to higher levels of professional training on their own initiative, and will be able to apply their knowledge in their schoolwork.

The counselors themselves value their institute training. One young woman has written: "This experience, I can say with sincerity, was most enriching and worthwhile for me. The training I received will enable me to perform more effectively as a counselor to young people."

Seven regular session institutes, financed at an estimated cost of \$1.1 million from 1959 funds, are in session now or soon will be. They will enroll approximately 300 persons who wish to become counselors.

The 84 short-term institutes scheduled for next summer will be financed from 1960 appropriations at an estimated cost of about \$3 million. They will provide training for about 3,000 persons. The 22 regular session institutes to be conducted in the 1960-61 school year at an estimated cost of \$2.4 million will provide training for about 1,000 persons.

#### Title VI: Language development

Through institutes, research, and the development of new instructional materials the language development program has enabled specialists to take the first firm step toward modernizing foreign language instruction.



In elementary and secondary schools and in colleges and universities the program is strengthening and spreading the learning of modern foreign languages critically needed by people in Government, education, the professions, and industry.

In compliance with the act and with the advice of the American Council on Education, the U.S. Commissioner of Education has determined the languages to be considered as critically needed.

The program has four parts:

1. The establishment of centers for teaching foreign languages rarely taught in this country and for related instruction in history, political science, linguistics, economics, geography, anthropology, and the like of the countries whose languages are being studied. They offer full academic year programs, primarily for graduate students.
2. Provision for research and development of instructional materials in modern foreign language.
3. Provision of fellowships for advanced training in modern foreign languages for persons who will enter college teaching or other public service.
4. The establishment of short-term or regular session institutes for advanced training of elementary and secondary teachers in the use of new methods and instructional materials.

Nineteen centers located on college and university campuses throughout the country are conducting training in the six languages to which the Commissioner has given high priority—Arabic, Chinese, Hindi-Urdu, Japanese, Portuguese, and Russian. These languages are spoken by at least 40 percent of the world's population. A few centers, however, offer languages which the Commissioner has rated as of second priority; for example, the Modern Foreign Language Center at Columbia University. Columbia's Department of Uralic and Altaic Languages has introduced graduate and undergraduate courses in 10 of the 25 Uralic and Altaic lan-

guages, which are spoken by 140 million people in nations in and around the Soviet orbit.

The centers are jointly financed from Federal and institutional funds. From 40 to 45 centers will be conducted in the 1960-61 academic year, including those already established, at a cost of \$1.5 million in Federal funds. More languages will be included.

The 1959 appropriation of \$500,000 is supporting 171 fellowships for graduate students, chiefly at the centers. The fellowships are distributed by languages as follows:

Arabic, 22; Chinese, 32; Hindustani, 10; Japanese, 24; Portuguese, 14; and Russian, 69. When these fellows complete their training they will be available to teach in U.S. colleges and universities.

In 1960-61 nearly 400 fellowships in 35 languages seldom taught in the United States will be provided at a cost of \$1.5 million. The 1959 fellows will receive preference in the awarding of fellowships. These 1961 fellows may choose public service, as determined by the Commissioner, instead of college teaching.

Because success of the language program is dependent in no small measure on the accomplishments of the research and studies designed to provide dictionaries and adequate instructional materials in some of the languages, it has received the largest appropriation; \$2.4 million was appropriated for 20 projects approved during fiscal 1959. They fall into three classes: Studies and surveys, 6; effective methods of teaching, 6; and development of specialized materials, 8.

The following are typical of projects in each class:

- ▶ The provision of up-to-date records of the status and trends of modern language instruction at all levels of American education, public and private.
- ▶ Preparation of experimental visual aids on basic grammatical problems in Spanish.
- ▶ Preparation of X-ray motion picture films showing both the articula-

tory process and the acoustic output of speech in Russian, Chinese, and Arabic.

Thirty-three projects have been approved (7 are pending signature) from the 1960 appropriation of \$4 million. In one, a Persian grammar and specialized materials for use in teaching Uralic-Altaic languages will be developed. In another, experimental teaching material will be prepared in French, German, Spanish, and Russian for secondary schools; it will emphasize the use of the language rather than the traditional grammatical analysis and translation.

The \$4.8 million appropriated for 1959 and 1960 will finance about 55 institutes which will provide advanced specialized training for more than 3,000 language teachers who in turn will be better equipped to instruct some 360,000 pupils. Obviously these teachers will make the most advantageous use of language equipment provided under title III.

Courses of study and extracurricular activities at the summer institutes are planned to increase the audio-lingual proficiency of teachers, to introduce them to new teaching methods and materials, and to improve their knowledge of the culture of the country where the language they are studying is spoken. For the same reasons teachers attending are usually required to live in language houses and take their meals in a group.

The Office of Education has taken steps to insure that the 1960 summer institutes will benefit from the experience of the 1959 institutes. First, each student was tested at the beginning and end of the program and his progress determined; second, activities of four institutes were recorded in technicolor; third, the institute program was evaluated by the directors in charge and by Middlebury College under contract with the Office of Education.

Middlebury's objective report, covering strengths and weaknesses of the 12 institutes, says that they have been successful and that "judged overall, they accomplished the purpose for which they had been established."

## Title VII: New educational media

Educators and laymen are asking how television, motion pictures, tape recordings, filmstrips, and related media can best be used to strengthen and enrich education. Programs being conducted under title VII are searching for the answers, and there is evidence that good progress is being made.

From the \$4.6 million available in Federal funds the Office will finance about 125 of the 250 proposals submitted for research and 30 of the 175 proposals submitted for the dissemination of information.

Three significant types of research grants have been made: For the improvement of teacher training through the use of television; for the development of self-learning devices (usually called teaching machines); and for the development and testing of new materials in various fields, including language, science, mathematics, history, and engineering.

A study of 80 projects approved and for which grants have been made, shows that they fall roughly into the following categories:

|  |    |
|--|----|
| Types of content suitable to teaching by means of television.....                  | 21 |
| Methods of using new media.....  | 24 |
| Quality of education resulting from use of new media.....                          | 21 |
| Comparison between the effectiveness of the new media and traditional methods..... | 14 |

Within the three classes of research the following are typical projects: Development of methods and materials to facilitate foreign language instruction in the elementary school; use of closed-circuit television as a means of improving the effectiveness of classroom teachers; and the effectiveness of audiovisual teaching materials prepared according to the principles of motivational research.

As information is gathered on the use of the new media in education, some facts stand out:

► Educators are increasingly concerned with the interrelationships of several media in the teaching-learning

process rather than with the contributions of one medium used in isolation.

► Educators are interested in determining the degree to which the newer media can be used to individualize instruction effectively and economically.

► Extensive investigation is being conducted into the contributions of the newer media to effective and higher cognitive learning rather than merely to the mastery of specific information.

Many reports coming into the Office suggest that title VII is influencing State programs. For example, through television a New England State is providing gifted young people living in rural communities with supplementary instructional programs; several colleges and universities are doing studies in a field that may represent a new dimension in American education; the development and testing of devices for self-instruction. If such devices are perfected and made available, a student may be able to assume more responsibility for his own education.

The dissemination projects approved provide for surveys and feasibility studies of the improvement of education through the increased use of the newer media. They cover such activities as the production of bibliographies and the holding of seminars, conferences, and workshops. One particularly promising project calls for the planning and production of filmed reports on teaching practices in the use of new media of instruction in modern foreign languages, mathematics, and science.

## Title VIII: Area vocational education programs

Under title VIII, 52 States and Territories are establishing and conducting vocational education programs in geographical areas larger than single localities. In these programs workers are trained for useful employment as skilled technicians in occupations which require scientific knowledge and which are necessary to the national defense.

Since the beginning of NDEA \$10.75 million has been appropriated for area vocational education programs, all of which must be matched on a 50-50 basis. There are indications that the full appropriation will be used; already some States are over-matching Federal funds.

During 1959 and 1960 almost 150,000 students have received or are receiving specialized training in such fields as electronics, electrical technology, mechanical drafting and design, chemistry, instrumentation, and electronic data processing. About 40 percent of the students are enrolled in preparatory programs and the others in extension programs.

States have made surveys and studies to determine the kind of training needed, geographical areas to be served, number of qualified students desiring training, availability of facilities and instructors, need for additional training for persons already employed, and types of courses needed—preparatory or extension. They have emphasized the development and use of appropriate curricula for a variety of technologies, many of which are based on the cluster of occupations approach to training.

Some of the developments reported by the States reflect the local response to the program:

► The value of area programs in training skilled technicians is gaining wide acceptance.

► States are providing new buildings and facilities and employing competent instructors.

► Students of high level capacity are being attracted to the programs.

► There is strong demand for preparatory training at the post-high-school level.

► The facilities of many public agencies and industries are being used.

## Title X: Statistical services

Fifty States and Territories are co-operating with the Federal Government in training staff and developing

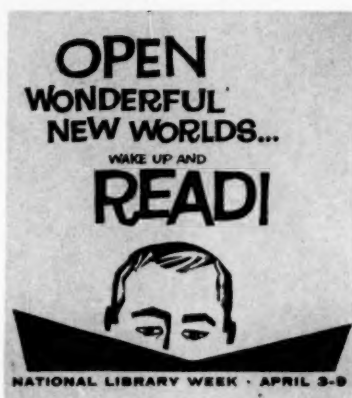
facilities and procedures for accumulating, processing, and disseminating educational data with greater speed, accuracy, and scope.

Many States have made extensive surveys which show their need for: Adequate facts about the condition and progress of education; better information on school finance, property, personnel, and instructional programs; increased use of standardized terminology so that comparable data may be compiled; up-to-date information for the use of researchers; faster collection schedules; and better cooperation between State agencies and the Office of Education.

Proposals outlined in State plans indicate that the States will use title X funds to correct some of these unsatisfactory conditions, as the following summary shows: Evaluation of present services, 43; education of personnel, 47; adoption of standard terms, definitions, measuring units, 45; development of State manuals and handbooks on the use of standard terms, definitions, and measuring units adopted, 42; establishment of local inservice training projects, 48; more accurate and extensive data collection, 45; improved data analysis and interpretation, 45; improved dissemination of educational statistics, 48; and introduction or expansion of machine-data-processing, 40.

Many States have already begun work on their proposals. They have conducted more than 120 training conferences for 5,600 local statistical workers. One State has gained 6 months in the collection and processing of data; several States have organized statistical services in State departments of education. Many States are providing electronic data-processing machines.

In 1959 the Government advanced \$366,546 in Federal funds to 29 participating States on a 50-50 matching basis. This year 40 States and Territories have already requested \$1,070,743 with some requests yet to be filed. Although the applications of 50 States and Territories have been approved, some States are having difficulty in obtaining matching funds.



*The strength of our Nation is founded in the minds and hearts of its citizens—individuals who have sought out the truth and have formed their own convictions. In this search, the freedom to read is an indispensable asset. During National Library Week, I hope that all Americans will make a special effort to seek out the treasures of knowledge, ideas,*

*and spiritual insight provided by our libraries across the land.*

—PRESIDENT EISENHOWER on  
*National Library Week.*

President Eisenhower's statement underscores the theme of this year's observance of National Library Week, April 3-9, 1960: "Open Wonderful New Worlds—Wake Up and Read." The objective of the week is to remind the American people that reading can help them explore and satisfy their need for a greater sense of purpose and meaning in their lives; to urge them to use libraries of all kinds more fully, and to set apart a time when people can rededicate themselves to the ideas and ideals of a free society.

This year the sponsors are offering a colorful school kit consisting of posters, bookmarks, decorations, and a booklet on "Activities for Youth—in School and in the Community." It suggests, along with other activities for schools that an open house be held for the school library and reading lists be supplied to pupils and parents. Further information can be obtained from National Library Week, 24 West 40th Street, New York 18, N.Y.

—By JOHN G. LORENZ, *Director, Library Services Branch*

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FACULTY AND OTHER PROFESSIONAL STAFF IN INSTITUTIONS OF HIGHER EDUCATION, FIRST TERM 1957-58, by *Wayne E. Tolliver* and *Hazel C. Poole*. 1959. 63 pp. 45 cents. (OE-53000.)

QUALIFICATIONS AND TEACHING LOADS OF MATHEMATICS AND SCIENCE TEACHERS IN MARYLAND, NEW JERSEY, AND VIRGINIA, by *Kenneth E. Brown* and *Ellsworth S. Obourn*. 1959. 101 pp. 70 cents. (Cir. No. 575.)

STUDIES ON THE TEACHING OF HOME ECONOMICS IN COLLEGES AND UNIVERSITIES, 1955-56, by *Ivol Spafford* and *Edna P. Amidon*. 1959. 144 pp. 55 cents. (Voc. Div. Bul. No. 276, Home Economics Series No. 31.)

TEACHER TURNOVER IN THE PUBLIC SCHOOLS, 1957-58, by *Ward S. Mason* and *Robert K. Bain*. 1959. 38 pp. 30 cents. (OE-23002.)

### FREE

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